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The Blowing Stone.

In the part of "Kington Lash House," Berkshire, England, is a wonderful stone. It is three feet high, three feet six inches broad, and two feet thick, and is pierced with holes. There are seven in front, three at the top, and several at the back. Just blow into any one of these holes, and you will hear a noise like the bellowing of a calf. A pretty big calf it must be, with powerful lungs, too, for when the weather is fine, the people who live six miles off, can hear it plainly, and a person standing three feet from the stone will feel the ground shaken under his feet. If a bit of stick is pushed into one of the holes at the top of the stone, it will come out at one of the holes at the back, showing what a wonderful breezy place the inside of this stone must be. In the old, old times, when there were wars and rumors of wars in England, this "Blowing Stone" was very useful in giving alarm when the enemy was coming. Now it only amuses the children.

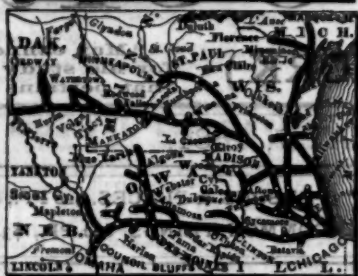
"A Flower from Father's Grave," is the title of a song just issued by Mrs. A. Elmore. It is fully equal in merit to any of those previously noticed. The words are the story of a man dying in a strange land. The one object to which he clings is the faded flower from his father's grave, far over the sea. The dedication is "To the G. A. R. and the memory of their missing comrades." Every household where an old soldier dwells should have this song. The price is 40 cts., but it is offered to our subscribers at 20 cts. post-paid.

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PORTER & COATES, Philadelphia, have published two new text books, one The Elements of Natural Philosophy, and the other A New School Physiology. They are both very thorough and interesting in method, and profusely illustrated. They are worthy of a careful examination. We will consider them at some length in our next issue. Progressive teachers will especially appreciate them.

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My Mineralogical Catalogue of 200 pages is sent post-paid on receipt of 25 cents, heavy paper 50 cents, bound in cloth 75 cents, 1/2 sheep \$1.25, 1/2 calf \$1.50, cloth interleaved \$1.25, 1/2 calf interleaved \$1.50, (price-list alone, 16 pp., 5 cents). It is profusely illustrated, and the printer and engraver charged me about \$1,100 before a copy was struck off. By means of the table of species and accompanying tables most species may be verified. The price-list is an excellent check list, containing the names of all the species, and the more common varieties, arranged alphabetically and preceded by the species number. The species number indicates the place of any mineral in the table of species, after it will be found the species name, composition, streak or lustre, cleavage or fracture, hardness, specific gravity, solubility and crystallization. I have very many species not on the price list, and some that I had in 1876 are no longer in stock.

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SCHOOL MANAGEMENT.

A PRACTICAL MANUAL FOR

Teachers, to Aid in Governing and Interesting a School,

BY AMOS M. KELLOGG, A.M.,

Editor of the NEW YORK SCHOOL JOURNAL, and TEACHERS' INSTITUTE; formerly Supt. of the Experimental Dept. of the State Normal School, at Albany, N. Y.

With an Introduction by Thomas Hunter, Ph.D., President of the N. Y. Normal College.

This work takes up the most difficult of all school work, viz.: the government of a school, and is filled with original and practical ideas on the subject. It is invaluable to the teacher who desires to improve his school.

READ WHAT THEY SAY OF IT:

From PROF. M. A. NEWELL, Principal of Maryland State Normal School.

Baltimore, January 17, 1901.

Messrs. E. L. KELLOGG & Co.,
Gentlemen,—I have received a copy of "School Management." I have read it with great pleasure and interest. No book of its size that I know of contains so many good suggestions for practical teachers.—Yours truly,
M. A. NEWELL.

From PROF. WASHINGTON HARMBOCK, Principal of the New Jersey Normal and Model Schools.

New Jersey State Normal School,
Trenton, Dec. 15, 1890.

I have read the advance sheets of Kellogg's "School Management," and am much pleased with the work. Unlike many books of the kind, it is the result of long and varied experience in the school-room, and hence must be invaluable to the young teacher. Every teacher should have it in his library.
W. HARMBOCK.

From PROF. W. F. PHELPS, formerly Principal of the Minn. State Normal School, now Supt. of the Winona City Schools.

"DEAR MR. KELLOGG,—I have carefully read the advance sheets of your new book on 'School Management' and am strongly impressed with the belief that the book is fruitful with suggestions, and that it will be exceedingly helpful to teachers. To the young and inexperienced it will prove a valuable guide. I hope the book will find its way into the hands of thousands of those who are struggling in the hands of innumerable obstacles to reach a higher standard of skill and efficiency."
Wm. F. PHELPS,
Supt. of Schools, Winona, Minn.

From PROF. J. W. BARKER, Principal of Public School No. 4, Buffalo, New York.

"I have been favored with the perusal of the advance sheets of Kellogg's new book upon School Management. What pleases me most is the straightforward, common sense style of the work. There seems to be no verbosity, no tedious attention of pedagogical detail, but a clear and systematic presentation of the teacher's work; sufficient for direction, advice and encouragement. The book has evidently been prepared with much care, and with an eye covering the entire field of the teacher's labor. Mr. Kellogg is a graduate of the Albany Normal School, and for some years held a professorship in that institution, and we can clearly see in 'School Management' much of the spirit and style of that first prime minister of normal schools in the State of New York, D. P. Page. We predict for this new book popular favor."
J. W. BARKER.

From the Cincinnati Enquirer.

A practical guide for the teachers on school management has just been issued by E. L. Kellogg & Co., of New York. Mr. Amos M. Kellogg is the author. Mr. Kellogg is himself an educator of wide experience, and in his book has given many hints to assist the inexperienced. He believes the way to manage a school is to render the pupils manageable. The book has an introduction by Thomas Hunter, President of the New York Normal College. It discusses the subject somewhat in the objective style—visiting a school and pointing out its excellent features. It shows how that good government increases the teaching powers of the teacher. Shows the principles that underlie it, and makes valuable suggestions as to the means by which regular attendance and the co-operation of the pupils can be secured. Discipline, penalties, modes of interesting and employing the pupils are treated in an enlightened manner. The volume will be of benefit to any teacher. It especially shows how the pupils may be led to co-operate and help forward the school instead of retarding it. It is a real addition to this class of works of which we have far too few.

From the Independent.

As far as we can judge from such inspection as we can give it, SCHOOL MANAGEMENT by Amos M. Kellogg, A.M. (New York: E. L. Kellogg & Co.) is a good and useful book. Mr. Hunter, President of the Normal College, in this city, points out its merits much in detail. The book goes on the general theory of making the pupils manageable and leading them to use their minds for themselves and in right ways, and seems to embody the conclusions of a sensible and experienced teacher.

From the Sunday School Times.

Some of the professions are so liberally supplied with books upon their own art as the profession of teaching. If we are to believe the teachers themselves, however, but few of these books are of either theoretical or practical value. It is a pleasure, therefore, to be able to commend a really good book in this line. This can fairly be done in the case of School Management, a practical guide for the teacher in the school-room, by Amos M. Kellogg, A.M., formerly of the New York State Normal College, at Albany, New York. It is based on experience, and its principles are those of wise and enlightened induction. The whole is very practical, and is done in an unpretentious manner. The author recognizes the existence of a wider world than the school-room, as well as the necessity of something more than the cob-webs of an experienced brain in order to know how to manage a first-rate school. The book is prefaced with a didactic and commendatory introduction by Thomas Hunter, Ph.D., President of the Normal College of New York City.

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CONTENTS OF THIS NUMBER.

EDITORIAL.	Page	Things to Tell the Scholars.	Page
Inspire.	3	EDUCATIONAL NOTES.	7
A School Board.	3	New York City.	7
Cast Iron in the Schools.	3	Elsewhere.	7
Politics and Education.	3	LETTERS.	9
The State Must Educate.	3	EDUCATIONAL MISCELLANY.	11
THE SCHOOL-ROOM.		How to Examine a Plant Microscopically.	11
Lessons in Fractions.	4	The Higher Education.	11
Talk with Pupils.	4	FOR THE SCHOLARS.	11
How to Gain Attention.	5	The New Scholar.	11
Whispering.	5	BOOK DEPARTMENT.	11
Black-board Reading Lesson.	5	New Books.	11
Educational Results.	5		
A Bit of School Experience.	6		
Questions.	6		
In Dear Life.	6		

New York, May 7, 1881.

To All Those in Arrears.

We are pleased with the promptness with which many of the subscribers to the SCHOOL JOURNAL have responded to the subscription bills mailed to them last week. There still remain a large number from whom we have not heard. We would remind all who are yet in arrears on subscription account, that a remittance of the money would be esteemed a favor. Shall we not hear from all such during the next 10 days?

THE VALUE OF EDUCATIONAL JOURNALS.—Every teacher in every public school should be a regular subscriber to one or more good school journals. They owe it to themselves, their pupils, and patrons to take this means of keeping themselves abreast of the times. They may think they can't afford to do it. The fact is they can't afford not to do it. There never was a time when the public school was receiving more attention from the

best class of the American people than now. Its faults and its weaknesses as well as its many excellences are all being brought out in the clearest light. The schools must be better taught in the future than they are now. To do this they must know their own faults and what will be expected of them in those schools which an awakened public opinion will demand. A good educational journal will prove a most excellent counselor and friend to the wise teacher under these circumstances.—C. H. REW.

Inspire.

A Sunday-school teacher read to his class that the Ethiopian eunuch went on his way rejoicing after Philip had talked with him, and then asked "Why did he rejoice?" The boy answered, "Because Philip was *done a teachin' him*." It is too often that there is great rejoicing when the lesson is finished. Attending a lecture lately, the speaker was long, learned, but dreadfully tiresome. When he had finished there was a loud applause. "Why," we asked, "this applause?" "Because he stopped there; he might have gone on longer."

The teacher should study to make the recitation a pleasure. The examination should be one that renders the pupil happier, brighter, and send through him feelings of strength. He should not talk too much himself, but question and lead his pupils to talk; thus teaching them to think, inquire and reason. The talking should be mainly on the scholars part.

The teacher should, like the chairman of a meeting, keep the others in order, so that the business will be transacted. If this is properly done, the pupil rises refreshed. His mind has collided with another mind; there has been attention, there has been reasoning, there has been expression.

A School Board!

The usual School Board knows little of the business such a body should transact. Why a school board should be set to select those who are to be superintendents, principals and teachers is a conundrum we give up. "What ever is is right" says Pope—but this is not, nor has it ever been, and yet the stupid plan is still in vogue. A lot of Democrats elect a Democratic Board, or a lot of Republicans elect a Board of their stripe, and then what? Why, then the folly begins.

So it has been a good while. In 1830 there was a vacancy in the chair of Moral Philosophy in the University of Edinburgh, Dr. Thomas Brown then dying. Now, the fittest in all Scotland for the place was Sir William Hamilton. The Town Council had the power to elect, and they being Tories, chose a Tory who remained in office for sixteen years. Here was the ablest man in all England at that time presenting his credentials to a Board, and the Board refusing to appoint him on his merits. We thank the Creator that He allowed Sir William Hamilton to live long enough to be appointed to a place he so justly deserved.

Now, just such things as that are of common occurrence. The appointing Board does not care for fitness, you understand; for it does not know what fitness means. Begin with the metropolis, go to Brooklyn, Albany, Buffalo and view the work of the Board! Ask yourself if it is not one grand scheme "how not to do it."

Cast Iron in the Schools.

The value of cast iron is appreciated by those who run the schools. Visiting a school lately we found a dissatisfied principal. On being asked as to his perplexity he declared it to be "cast iron."

"There is no discretionary power. I have a 'course of study' fixed and all have to follow that—rich or poor, white or black. The scheme looks well on paper, but it don't work well. It crushes the children, it does not educate them. The graded system is good up to a certain point. It reminds me of old Deacon Jones' children. They were waked up at a certain hour every morning, had healthy food to eat, were sent to the prayer meeting on Wednesday night, read the Bible through several times, went to Sunday-school and church, and yet were graceless little rascals. Mrs. Jones was in despair. She told her troubles to a neighbor who had good children, and asked, 'What can I do?' 'Try a little wholesome neglect,' was the reply.

"This is what the schools need. The graded system is good, but it must be administered in a wholesome way. I am not permitted to use my judgment, and soon I shall have none to use. My teachers have no interest in education whatever. They only try to run things so the superintendent will be satisfied. That is what is the matter. 'Isn't that enough?' We thought it was.

Politics and Education.

The plain state of the case is that our education is every year more and more under the management of one or other of the political parties. It is useless to deny that this works an injury to the scholars. The original plan yet pursued in a few New England towns, was to select intelligent citizens—the minister, physician, lawyer, and let them employ the teacher, and even examine into his qualifications. As this plan disappeared the necessity was felt for an examining officer—and he is elected by political planning. That is to say, politics, grasping the schools, necessitated superintendents—and now politics grasps the superintendent by the throat. The State Supt. is the creature of politics also.

That, in spite of this bad system, there is a good State Supt., and some good County Supts. is admitted, but it is in spite of the system. The method is a bad one. It does not make good of the schools its supreme object. We protest against it. If State Supt. Gilmer is doing what he should do, he should hold his post without fear of caucus, or need of stumping the State in aid of his party. If Messrs. Surdam, King, Chapin,

etc., are managing the schools properly they should continue to hold office for that reason. Look at it in what light we may, the changing of men and measures according to the whim of a caucus is fatal to the progress of our schools. Sooner or later it must be superseded by the selection of the fittest men and their retention in office.

What will bring about this change? Public opinion—enlightened public opinion. To cause this enlightenment is the business of the teachers. Of course, all that can will shirk responsibility and action. The women excuse themselves by saying they have nothing to do with politics, but the reason is a poor one. The principals and city superintendents, and all those who might be expected to lead, refuse to move because there is nothing for them to gain; if it would increase the number of higher places they would join the reform. So that the case looks somewhat hopeless. But we do not despair.

The State Must Educate.

(FOR RICHARD GRANT WHITE.)

The question of education is for modern societies a question of life or of death, a question on which their future depends. Our stand has been resolutely taken in this respect. We shall never recede from this philosophical principle, that every man is entitled to enlightenment. We are confident that enlightenment is beneficent, and that if it be attended with some dangers, it alone can provide a remedy for them. Let those who do not believe in the reality of duty, who regard morality as an illusion, preach the dreary doctrine of the necessary degradation of a part of the human race; but for us who have absolute confidence in moral truth, such a doctrine is out of the question. At any price, let come what may, let there be more light! This is our motto, and we shall never abandon it.

I know that many minds, and some of them of the better order, have doubts on this subject. They are alarmed at the progress which, in these days, is carrying knowledge to portions of the human race that up to this moment have been excluded from it. There are, they say, in human labor, human duties to which an educated man will never submit. The awakening of the intelligence is always accompanied with more or less of revolt; the diffusion of instruction will make wholly impossible order, subordination, and obedience to authority, without which humanity has thus far been unable to exist. This is very bad reasoning, and, I even venture to say, very impious reasoning. This is the reason which was invoked for centuries to maintain slavery. The world, it was said, has need of menial services that a free man will never assume; hence slavery is necessary. But slavery has disappeared, and the world has not gone to destruction on that account. Ignorance will also disappear, and the world will not go to ruin. The reasoning that I oppose proceeds from a low and false assumption—that instruction serves only for the practical use that is made of it; so that he who, on account of his social position, cannot give a money value to intellectual culture, has no need of that culture. Literature, according to this mode of thinking, is useful only to the man of letters; and good manners only to men of the world. The poor man ought to be ignorant, for edu-

cation and knowledge would be useless to him. This is blasphemy. Culture of mind and culture of soul are duties of every man. They are not simple ornaments, but are things as sacred as religion. If mental culture was a frivolous thing, it might be held that it was not intended for all; but if it be a sacred thing *par excellence*, no one should be excluded from it. One does not dare say, at least in a Christian country, that religion is a thing reserved for the few, that the poor and humble man ought to be excluded from the church. And so instruction, the culture of the soul, is our religion, and we have not the right to deprive any one of it. To condemn a man, *a priori*, not to receive instruction, is to declare that he has no soul, that he is not the son of God and of the light. This is the climax of impiety.—ERNEST RENAN.

THE SCHOOL-ROOM.

For the SCHOOL JOURNAL.

Lessons in Fractions.

No. II.

LESSON 1. With an object in the hand, as a piece of paper, and a pair of scissors, say: I cut this into two equal parts—how many parts are there? What kind of parts? They are called halves; here is one half and here is the other. How many halves? How many halves in this piece of paper? In this apple, in this stick, etc. etc. How many halves in—well, what I have in this box? In this drawer? How many halves in anything? One half is written $\frac{1}{2}$.

LESSON 2. In a similar manner proceed with thirds. One third is written $\frac{1}{3}$; two thirds are written $\frac{2}{3}$.

LESSON 3. In a similar manner proceed with fourths.

LESSON 4. In a similar manner proceed with fifths.

LESSON 5. In a similar manner proceed with sixths.

LESSON 6. In a similar manner proceed with sevenths.

LESSON 7. In a similar manner proceed with eighths.

LESSON 8. In a similar manner proceed with ninths.

LESSON 9. In a similar manner proceed with tenths.

LESSON 10. In a similar manner proceed with elevenths.

LESSON 11. In a similar manner proceed with twelfths.

LESSON 12. In one thing there are how many fourths? In one half a thing there are how many fourths? Two. Yes, and this I write thus: $\frac{1}{2} = \frac{2}{4}$.

In one thing there are how many sixths?

In one half a thing are how many sixths? Three. Yes, and this I write thus, $\frac{1}{2} = \frac{3}{6}$.

In one thing are how many eighths?

In one half a thing how many eighths?

Four. Yes, and I write it thus, $\frac{1}{2} = \frac{4}{8}$.

In one thing are how many tenths?

In one half a thing how many tenths?

Five. Yes, and I write it thus, $\frac{1}{2} = \frac{5}{10}$.

In one thing there are twelve twelfths?

In one half a thing there are how many twelfths. Six. Yes, and I write it thus, $\frac{1}{2} = \frac{6}{12}$.

Now I put it in a table thus,

$$\frac{1}{2} = \frac{2}{4}; \frac{1}{2} = \frac{3}{6}; \frac{1}{2} = \frac{4}{8}; \frac{1}{2} = \frac{5}{10}; \frac{1}{2} = \frac{6}{12}$$

LESSON 13. In one thing are how many sixths? In one third are how many sixths? Two. Yes, and I write that fact thus, $\frac{1}{3} = \frac{2}{6}$. John has $\frac{1}{3}$ of an apple and James has $\frac{2}{6}$, who has the most? Let us try and see. Here is $\frac{1}{3}$ and here is $\frac{2}{6}$. Which is the most? John has $\frac{1}{3}$ of an apple and James has $\frac{2}{6}$, who has the most? Let us try and see. Here are $\frac{1}{3}$ and here are $\frac{2}{6}$, which is the most? In one thing are how many ninths? In one third are how many ninths? Three. Yes, and I state the fact thus, $\frac{1}{3} = \frac{3}{9}$. John has $\frac{1}{3}$ of an apple and James has three ninths; who has the most? Let us try and see. Here is $\frac{1}{3}$ and here is $\frac{3}{9}$, which is the most? In one $\frac{1}{3}$ are $\frac{3}{9}$, in two thirds how many ninths? Six. Yes, and I state it thus, $\frac{2}{3} = \frac{6}{9}$. John has $\frac{2}{3}$ of an apple and James has $\frac{6}{9}$, who has the most? Let us try and see. Here are $\frac{2}{3}$ and here are $\frac{6}{9}$, which is the most? In one thing are how many twelfths. In $\frac{1}{3}$ how many twelfths? Four. Yes, and I state it thus, $\frac{1}{3} = \frac{4}{12}$. In $\frac{2}{3}$ are $\frac{8}{12}$. Well, how many twelfths in $\frac{1}{3}$. Eight. Yes, and I state it thus, $\frac{1}{3} = \frac{8}{24}$. Let us see if it is so. Here is an apple cut in twelve parts. Here is one cut in three parts.

Now I give $\frac{1}{3}$ of the apple to James. How many of the twelfths must I give John so he will have the same? Four. Yes. And if I give James $\frac{1}{3}$ of the first apple, how much must I give John of the second apple. Eight. I will put this in a table thus:

$$\frac{1}{3} = \frac{4}{12}; \frac{2}{3} = \frac{8}{12}; \frac{1}{3} = \frac{4}{12}; \frac{2}{3} = \frac{8}{12}; \frac{1}{3} = \frac{4}{12}; \frac{2}{3} = \frac{8}{12}$$

Talk with Pupils.

A DROP OF WATER ON ITS TRAVELS.

We are going to follow a drop of water on its travels. If I dip my finger in this basin of water and lift it up again I bring with it a small glistening drop out of the body of water below, and hold it before you. Tell me, have you any idea where this drop has been? What changes it has undergone and what work it has been doing during all the long ages that water has lain on the face of the earth? Again, if I were to put this basin on the stove till all the water had dried away, where would my drop be then? Where would it go? What forms will it take before it reappears in the rain cloud, the river or the sparkling dew?

These are questions we are going to try to answer, and first before we can in the least understand how water travels, we must have clearly pictured in our imagination those countless sun waves which are forever crossing space and especially those larger and slower undulations, the dark heat-waves; for it is these which force the air atoms apart and make the air light, and it is also these which are most busy in sending water on its travels.

Let us try to understand how these two invisible workers, the sun-waves and the air, deal with the drops of water. I have here a kettle boiling over a spirit lamp, and I want you to follow what is going on it. First, in the flame of the lamp, atoms of the spirit drawn up from below are clashing with the oxygen atoms in the air. This, as you know, causes heat waves and light waves to move rapidly all round the lamp. The light waves cannot pass through the kettle, but the heat waves can, and as they enter the water inside they agitate it violently. Quickly, and still more quickly, the particles of water near the bottom of the kettle move to and fro and are shaken apart; and as they become light they rise through the colder water, letting another layer come down to be heated in its turn. The motion grows more and more violent, making the water hotter and hotter, till at last the particles of which it is composed fly asunder and escape as invisible vapor. If this kettle were transparent you would not see any steam above the water, because it is in the form of an invisible gas. But as the steam comes out of the mouth of the kettle you see a cloud. Why is this? Because the vapor is chilled by coming out into the cold air, and its particles are drawn together again into tiny, tiny drops of water.

The clouds you see floating in the sky are made of exactly the same kind of water dust as the cloud from the kettle.

Now, although we never see any water traveling from our earth up into the skies, we know that it goes there, for it comes down again in rain, and so it must go up invisibly. But where does the heat come from which makes this water invisible? Wherever the sun waves touch the rivers, ponds, lakes, seas or fields of ice and snow upon our earth, they carry off invisible water vapor. In this way the sun waves and the air carry off water every day, and all day long, from the top of lakes, rivers, pools, springs and seas and even from the surface of ice and snow. Without any noise or sign of any kind the water of our earth is being drawn up invisibly into the sky.

It has been calculated that in the Indian Ocean three-quarters of an inch of water is carried off from the surface of the sea in one day and night; so that as much as twenty-two feet or a depth of water about twice the height of an ordinary room, is silently and invisibly lifted up from the whole surface of the ocean in one year. It is true this is one of the hottest parts of the earth, where the sun waves are most active; but even in our own country many feet of water are drawn up in the summer time.

What, then, becomes of all this water? Let us follow it as it struggles upwards to the sky. Well, as this water-laden air rises up, its particles, no longer so much pressed together, begin to separate, and as all work requires an expenditure of heat, the air becomes colder, and then you know at once what must happen to the invisible vapor—it will form into tiny water drops, like the steam from the kettle. And so, as the air rises and becomes colder, the

vapor gathers into visible masses and we can see it hanging in the sky, and call it clouds. When these clouds are highest they are about ten miles from the earth, but when they are made of heavy drops and hang low down they sometimes come within a mile of the ground.

Look up at the clouds as you go home and think that the water of which they are made has all been drawn up invisibly through the air. Sometimes, if the air is warm, these water particles may travel a long way without ever forming into clouds, and on a hot, cloudless day the air is often very full of invisible vapor. Then, if a cold wind comes sweeping along high up in the sky, and chills this vapor it forms into great bodies of water dust clouds, and the sky is overcast. At other times clouds hang lazily in a bright sky and these show us that just where they are the air is cold and turns the invisible vapor rising from the ground into visible water-dust, so that exactly in those spaces we see it as clouds. Such clouds form often on a warm, still summer's day, and they are shaped like masses of wool, ending in a straight line below. They are not merely hanging in the sky, they are really resting upon a tall column of invisible vapour which stretches right up from the earth; and that straight line under the clouds marks the place where the air becomes cold enough to turn this invisible vapour into visible drops of water.

And now, suppose that while these or any other kind of clouds are overhead, there comes along either a very cold wind, or a wind full of vapour. As it passes through the clouds, it makes them very full of water, for, if it chills them, it makes the water-dust draw more closely together; or, if it brings a new load of water-dust, the air is fuller than it can hold. In either case a number of water-particles are set free, and our fairy force "cohesion" seizes upon them at once and forms them into large water-drops. Then they are much heavier than the air, and so they can float no longer, but down they come to the earth in a shower of rain. And thus one drop is back from its travels.—*The Fairy-Land of Science.*

How to Gain Attention.

By telling the child something which pays him for giving attention.

By giving information in such a manner that the scholar will count in worth his hearing.

Interest the scholar in a subject, and he will cheerfully give attention.

Under some circumstances children are capable of vigorous and long sustained attention. Nor can we find a better illustration of mental absorption than the school boy engaged in a match of cricket or football. The attention of children is not much under the control of the will, but depends upon the interest which they feel in the subject.—*W. H. Groser.*

Awaken the scholar's sympathy with the subject, and he will give earnest attention.

Excite curiosity in the mind, and cheerful, earnest attention follows.

Curiosity in children is but an appetite after knowledge. I doubt not but one great reason why many children abandon themselves wholly to silly sports and trifle away all their time insipidly, is because they found their curiosity balked and their inquiries neglected.—*Locke.*

Bring distinctly before your own mind the well-known fact, that children delight as much in exercising their minds as their limbs; provided only that which is presented to them be suited to their capacities and adapted to their strength.—*Dunn's Principles of Teaching.*

Be intensely interested in the lesson yourself, and you will interest scholars and gain their attention.—*S. S. World.*

A record of the results of experiments made by Dr. Just on the effect of high temperatures on the preservation and germination of seeds, shows that perfectly dry seeds can withstand a high temperature, even as high as 240 deg. to 259 deg., without injury.

LORD GIFFORD, a Scotch Judge, in opening the session at the Edinburgh School of Art, recently summed up the advantages which a full and accurate scientific knowledge would bestow on those who are engaged in any practical work, as that scientific knowledge of their subject would make work, whatever it is, intelligent, not mechanical; that it would enable them to produce more exact and perfect work; that it would make their work advancing and progressive, and that it would make their life-work in itself delightful, and a source of pure and profound joy.

For the SCHOOL JOURNAL

Whispering.

By D. G. WRIGHT.

The crude teacher gives his whole mind to "How to stop whispering." I have known a teachers' convention to debate on nothing else. It used to trouble me, but does no longer. Because I do three things: (1) Keep the pupils busy. (2) Treat them politely. (3) Consider whispering a disorder, simply.

I say nothing about whispering, let them whisper, I consider it like the noise one makes as he walks the room. It is a necessary thing. Some will make more and some less. Some will go so still as not to trouble the rest; some will try to make a great deal, some are careless, and some are vicious. It is useless to say "there should be no whispering." The parents do it at churches, the teachers at teachers' conventions. Let us teach them to use it with judgment, and what whispering they do to do it above board and not in a mean and sneaking manner.

As I have said, I do not forbid it. I say "you talk too much," "you talk too loud," &c., in this way teach them to regulate it. It is an old doctrine that there must be no talking in school, but why? The same pupils go to entertainments and meet their schoolmates and are allowed to talk to them, nor do I hear of any trouble that arises at these places.

There is one thing that struck my attention very forcibly I had a school once that I controlled with a rod of iron, no one was allowed to speak a word. In the same town was a private school and it was said that the pupils there did as they chose. At a festival I was pained to over hear a conversation by two ladies to the effect that "Mr. Wright's pupils were the worst behaved pupils in the room: Mr. R's pupils behave very nicely." I thought on that a good deal and come to the conclusion that I over-governed. After that I was less strict.

Children must be taught to govern themselves, and as to whispering, they must be taught to control themselves. My rules are: (1) Do nothing that will interfere with another. (2) Mind your own business as hard as you can. These I enforce as well as I can. As to specific rules, I say "use the intermission for talking as much as possible; that is keep what you have to say until then."

To have the same rules that you have at church, lectures Sunday schools and parties is the true method. I do certainly believe that children should "learn to mind" as we say, and I teach my pupils to mind and they do mind, but I develop their reasoning powers, I want a pupil who will in society know how to hold his tongue. To be able to speak and not to speak is the test. The one who does not speak because he is not permitted cannot claim that he is educated.

Of course you will have difficulty with new pupils; of course the rude and uncultured and much repressed will take advantage of you. But I get my school in such a state that it keeps such elements in subjection. I am no longer in fear of the bug-bear, whispering, I have other things I am now in fear of. "Is this a School," I continually ask myself, or is it only a mill—a knowledge mill if you think that sounds any better—if so, then it is a failure."

Blackboard Reading Lessons.

These lessons should vary as much in style as in matter. Children are pleased with whatever is novel.

The following may be given as a riddle lesson:

1. Guess my name.
2. I can sing.
3. I am bright.
4. I have a long nose.
5. I am made of tin.

With this lesson in mind, the teacher may ask the children,—How many would like to guess a riddle?

If the teacher have the right spirit, every hand will be raised, every child will be eager and curious.

The teacher will then print or write the riddle on the blackboard, calling on the pupils to read each line as soon as it is written.

After the reading of any line except the first, the teacher can allow pupils to come to her side and whisper their guesses as to what can sing, or what has a long nose.

When each child has had an opportunity of guessing, the teacher can mention the names of those who have guessed correctly, and then draw rapidly upon the board a picture of a tin tea kettle.

The curiosity of the children being satisfied on this point, their attention may be again directed to the reading of the lesson.

There are many ways of reading such a lesson. I will give a few of them:

1. The teacher may point to a line and the pupils read.
2. A pupil may point to a line and select another pupil to read.
3. Pupils may read in turn one line each.
4. Pupils may read in order, each one choosing his own line.
5. A pupil may point while the remainder of the class read in concert.
6. The teacher may point for the class to read in a whisper in concert.
7. The teacher may select a pupil to read the entire lesson.
8. The teacher may give the number of some line, without pointing to it, and ask the pupils to read individually or in concert.
9. The teacher may select pupils to read the lesson from right to left.

Those different methods cannot all be used with the same exercise, but the teacher can select those likely to be the most pleasing to the children, or devise new methods.

If a short drill in spelling is desirable at the close of the reading, children enjoy selecting words from the lesson and spelling them with closed eyes. They take pride in selecting the hardest words.

When the pupils have passed to their desks, require a reproduction of the lesson upon slates or slips of paper. Do not consider any reproduction complete, that does not show a fair attempt to reproduce the picture.—*Wisconsin Journal of Education.*

Educational Results.

None can dispute the incalculable good which the people of the Empire State have received from free public education; but very few stop to consider, and very few will at first be convinced, that this system is also doing irretrievable injury to thousands of the youth of the State; not because it is too conservative, but too restricted in its modes of education. Education, in the real full sense of the word, is not simply the acquirement of knowledge in arithmetic, geography, grammar, writing, geology, botany, classics, languages, and music; it includes the education of youths, to carry on those trades, businesses and labors which are so necessary and essential to the growth and prosperity of the nation.

To tell the principals and teachers, the Board of Education and Superintendents that the result of their efforts is the production of much lasting harm to the present and, more especially, the next generation, may be deemed recklessness on our part, but, however unpalatable the assertion may be, it is strictly true.

Let us see how the boys are being prepared to take their fathers' places. The son of the bookkeeper, bank-clerk, Wall street broker, lawyer, doctor, or literary man, are receiving such education as fits them to take their fathers' places. The longer they are sent to school the better fitted they are apt to become for those places.

Let us, however, go further and see how the sons of the men who are the bulwarks of the nation, the men whose labors make the nation's greatness, are educated. What provision is made in this system for turning out a boy educated to succeed his father on the farm, in the carriage shop, at the carpenter's bench, the tailor's board, to use the waxed end, to shape the rough stone, to build a house, or carry on the many other honest, honorable trades, by which the artisan supports his family? We fail to discover the nearest approach to this class of education. While schools for sewing and cookery, and learning other household duties have been established for girls, boys have no school to learn to be carpenters, mechanics, tailors or shoemakers, or to plough, to sow, or reap, or do the work of the farm, unless, perchance, as is unfortunately the case now-a-days, their over education has been the means of taking them to prison, there to be taught a trade under compulsion. The parents who will ponder for a few moments, and look around him, right here in our own community, will find for himself truthful corroboration of what we have said. Go to the High School any day. There you will see youths of 14, 15, 16 even 18 years of age, studying mathematics, classics, geology, or botany; they can recite or declaim most creditably; write an essay or conjugate a Latin verb; every one of them ready to go

into some store or office; not one of them fit to go to work on the farm, or in the shop, to use a needle, or prepare the land for the seed. Ask them what they intend to do when they leave school; they are not sure, but hope to get into the grocery store, or a bank, or an office, wherever the work is easy and hours of labor short. When such are the developments of this so called grand educational scheme or system of ours, the truth falls out of the statement of the Superintendent that our boys are being educated to take the places of their fathers.—*Flushing paper.*

For the SCHOOL JOURNAL.

A Bit of School Experience.

By W. C. PAYNE, Hinsdale, Ill.

School opened with sixteen pupils, all German and but three or four could speak any English, which was remarkable as the majority had attended school for several years. After ascertaining names, ages, &c., a bright looking boy was called up and asked to read. He had been through the Sanders Fourth Reader and, though he seemed to think it entirely unnecessary, was turned back to the first of the book. He read a verse without much hesitancy, in a loud clear voice, stopping the required length of time at each comma, colon, and semicolon, letting his voice fall at the end of each indicative sentence and holding it up at the end of each interrogation with the greatest precision as all well oiled reading machines should. When he had finished with the air of a conquering hero, I asked him if he understood what he had been reading, but a blank look was my only answer. "What is meant by the question *Is knowledge the pearl of price?*" I asked. Another blank look. My next question was, "What is meant by the word *knowledge*?" but receiving no answer I said, "When I ask you a question you should answer if you can, but if you cannot you should say 'I don't know.' Have you been accustomed to have questions asked you concerning the lesson?"

Ans. "I don't know."

Ques. "Do you understand me?"

Ans. "No sir."

Ques. "Did your last teacher ask you about the lesson?"

Ans. "No sir."

Ques. "Did you do anything but read and spell?"

Ans. "We jes read."

Here then was the difficulty. I must take a number of boys and girls who had "jes read" and teach them the meaning of what they had learned. Heretofore they had read without attaching any meaning to the signs and characters which they had been obliged to memorize day after day.

This boy was a fair example of the entire school and I caused him and the five others comprising the class to turn back to the middle of the Third Reader very much to their disgust, and by questioning them and encouraging them to talk and think about their work obtained very satisfactory results. At first some few were rather rebellious and discouraged, but after two or three lessons they began to take a fresh interest in the recitations, studying with the view of learning the lesson and understanding it rather than of finishing a certain number of pages. It is true we did not proceed as rapidly, since the time expended in questions and answers might have been given to the reading alone; but the greater facility with which they soon began to read more than compensated for that.

After keeping the class in the Third Reader for some time they went on to the Fourth, and their reading was much improved, not so much in the pronunciation as in the expression and ease of utterance. This may be seen by the following which I will write literally. After the class has taken the recitation bench I hold up my hand and ask "How many think they can read the first paragraph without making any mistake?" (All hands are raised).

T. "You may try it, John." (John reads the paragraph making two mistakes).

T. (Raising hands). "How many noticed any mistake?" (Five hands are raised).

T. "What mistake did you notice Lizzie?"

L. "He called application, application."

T. "That is right. What does *application* mean, John?"

J. "It means working hard and long."

T. "You may use the word in a sentence, Thomas."

Thom. "I cannot learn much without application."

T. "Very well Thomas, that is a good sentence and a very true sentence. Mary; What other mistake did you notice?"

M. "He called *construe*, *construct*."

T. "What does *construe* mean?"

M. "Construe means read or explain."

T. (Raising hand). "Who can tell what *construct* means?" (Three hands). "What does it mean, John?"

J. "Construct means to build."

In this manner the entire lesson may be recited, always being careful to have the pupil name the word he is defining in giving the definition that it may be firmly fixed in the memory. The questioning should be done in a cheerful, lively manner, in order that the interest of the pupil may be kept awake, for if the teacher is listless either in his motions or speech he cannot expect order and interest during the recitation.

For the SCHOOL JOURNAL.

Questions.

1. Do you allow your pupils to interrupt you with questions while you are teaching a class?
2. Do you answer such questions?
3. Do you allow the pupils to address you in an impolite manner?
4. Do you allow pupils to answer back?
5. Do you allow them to speak in class without permission—as "that's just what I said?"
6. Do you allow them to stare at visitors?
7. Do you allow them to become inattentive to your directions, so that twice or thrice telling is needed?
8. Do you allow them to go away with the idea that "high marks" are the all in all?
9. Do you permit rudeness and want of refinement of manner?
10. Do you feel sure they are better and stronger and wiser to day than yesterday?
11. Do you attempt seriously to know more each day on some special subject—arithmetic, physiology, etc.
12. Do you read so as to know the progress of the age?
13. Do you attempt to add from your stock of knowledge to what is given in the text-book?
14. Do you ever ask yourself, "Would a very skillful teacher have taught that lesson in that way?"
15. Do you study to be more free in your work to-day than yesterday?
16. Are you filled with earnestness and enthusiasm in your teaching?
17. Do you require the words or the thought?
18. Do you really understand what teaching is?
19. Do you look for growth of mind as the result of your teaching?
20. Do you feel growing within you the power of teaching?
21. Do you ventilate your room, so that it is healthful to live in?
22. Do you see that your room is neat and clean?
23. Do you have it disinfected with chloride of lime weekly, so that it smells sweet?
24. Do you watch the light, so that it is not too strong?
25. Do you see that your room is properly warmed?
26. Do you see that the desks are not too high or too low?
27. Do your pupils sit erect?
28. Are the blackboards covered with neat maps, examples, etc., or the rude scrawls so often seen?
29. Are the rubbers clean?
30. Have you neat pointers?
31. Do you correct the bad grammar of your pupils? ("I seen him last night.")
32. Do you use oral methods?
33. Could you "recite the lesson" (as the vile phrase is) as well as the pupils you criticize?
34. Do you study the lessons yourself?
35. Do you teach in an animated manner?
36. Do you criticize your mode of standing, talking, etc.
37. Do you use as good a tone to your pupils as to visitors?
38. Do you give lessons that pertain to the future life of your pupils?
39. Do you teach them about their own homes, their own town—its products and manufactures, etc?
40. Do you pay attention to their manners? That is, do you "bring up" your pupils, or let them come up?
41. Do you attempt in any way to advance the standard of education?
42. Do you attempt to know and comprehend the views of the great teachers?
43. Do you own some educational works, Page, Froebel, Pestolozzi?

44. Do you read educational papers?

45. Do you study education (your profession, mind) every day?

46. Do you hear lessons, or teach?

47. Do you follow educational principles?

48. Do you attempt to improve the state of public opinion on education?

49. Do you attend the meetings of teachers?

50. Do you ever ask yourself, "Is this genuine teaching that I am doing?"

In Door Life.

It would be a great improvement on our present system of school-education, if children could learn the rudiments at home and pass their infancy, the first eight or ten years, at least, under the immediate supervision of their parents; a transition-period of three or four years of home studies would help them to steer clear of many moral and physiological cliffs. It is always the best preparatory school; only a private teacher has time and patience to interest a pupil in the dry *principia* of every science; but a still greater advantage in his independence of fixed methods and fixed hours. As a general rule, the forenoon is the best time for studies, and the airiest room in the house the best locality. Pure air has a wonderful effect on the clearness of our cerebral functions; the half suffocating atmosphere of the average school-room is as stupefying as the influence of a half-intoxicating drink. Heat aggravates the offensiveness of foul air; but in a well-ventilated room the degree of temperature is comparatively unimportant. As it would be inconvenient to load ourselves with blankets in daytime, less than 50 degrees Fahr. would make sedentary occupations rather uncomfortable, and more than 80° would become oppressive in a close apartment; but between these extremes we may safely suit our convenience. Perfectly pure or perfumed air may be very warm and still very pleasant, as all know who have entered a conservatory or a tidy baker's shop on a cold winter day.

In large town schools where hundreds of children have to breathe the same air, I would advise a change of rooms from hour to hour, and a thorough renovation of the vitiated atmosphere by opening every window and every door, and keeping up a rousing fire. The air-currents could be re-enforced by mechanical means—canvas flaps or revolving fans—and fumigation would greatly aid the good work. The South European druggists sell various kinds of frankincense that can be burned on a pan or a common stove, and will fill a large church with odors more or less Sabean, according to price—ten cents' worth a day would be enough to beatify a whole town school; Mohammed, the man of God, included perfume among the three greatest blessings of human life. Young children ought to have a recess after every lesson, and should not be required to sit rigidly quiet. The best writing-stand for children is Shreber's "telescope-desk," a box-like contrivance, with a movable top that can be lowered or raised to suit the convenience of sitting or standing writers. In a latitude where the weather so often precludes the possibility of out-door recreations, every school-house should have a recess-room, and every town school an indoor gymnasium.

Fireside comforts are almost inseparable from the idea of an open fireplace, and from an hygienic standpoint, too, the old-fashioned chimney, or an open grate, is far superior to a closed stove. But it should not be forgotten that the operation of the chimney-draught alone is insufficient to correct the vitiated air of a small room, it merely creates an outward current. An open window completes the renovating process; in cold weather a few minutes are sufficient to revitalize the indoor atmosphere for a couple of hours. Only the blindest prejudice can deny the pleasant effect of such an influx of life-air; it revives the atrophied lungs as a draught of cool water refreshes the parched palate. Colds are never taken that way. What we call a cold is caused by the influence of impure air, or dust, on the sensitive tissue of our respiratory organs; subsequent exposure to the open air merely initiates the crisis of the order, the discharge of the accumulated mucus through the nose or throat. Fresh air is here only to proximate cause, as in toothache, or in those paroxysms of retching following on the first respiration of a half-drowned person. If we postpone the crisis by persistently avoiding the open air, the unrespirable matter, instead of being discharged, will be deposited in the tissue of the lungs in the form of tubercles.

The end of the day is the best time for a sponge-bath;

a sponge and a coarse towel have often cured insomnia where diacodium failed. A bucketful of tepid water will do for ordinary purposes; daily cold shower-baths in winter-time are as preposterous as hot drinks in the dog-days. Ninety-nine boys in a hundred would rather take the bitterest medicine than a cold bath in mid-winter. If we leave children and animals to the guidance of their instincts they will become amphibious in the dog-days, and quench their thirst at the coldest spring without fear of injurious consequences; but in winter time even wild beasts avoid immersion with an instinctive dread.

Our beds are our night clothes, and ought to be kept as clean as our shirts and coats. Woollen blankets are healthier than quilts; a straw tick is better than a horse-hair mattress, though a woven wire mattress is perhaps preferable to both. Feather beds are a recognized nuisance. Children over ten should sleep alone, or at least under separate blankets, if the bedsteads do not reach around.

If you would preserve your children from wasting diseases, do not stint them in their sleep; chlorotic girls, especially, and weakly babies need all the rest they can get. If they are drowsy in the morning, let them sleep; it will do them more good than stimulants and tonic sirups. For school children in their teens, eight hours of quiet sleep is generally enough, but do not restrict them to fixed hours; in mid-summer there should be a siesta-corner in every house, a lounge or an old mattress in the coolest nook of the hall, or a hammock in the shade of the porch, where the little ones can pass the sleep-inviting afternoons.—*Popular Science Monthly.*

Things to Tell the Scholars.

(PREPARED FOR THE N. Y. SCHOOL JOURNAL.)

MR. WYMPER in a lecture on his ascents of Chimborazo and Cotopaxi, says of volcanic force that in an eruption of Cotopaxi, which he witnessed, the ashes rose in a column twenty thousand feet above the rim of the crater, which was itself nearly twenty thousand feet high, and spread over an area of many miles. From observations of the area over which the ash fell, Mr. Wymper calculated that at least 2,000,000 tons must have been ejected in this one eruption.

A prehistoric city, supposed to be of Celtic origin, has recently been explored in the neighborhood of Braga, Portugal, after having been buried for two thousand years under rubbish, soil, and a rich vegetation. Circular walls, streets, squares, large architectural monuments, and even a number of houses, have retained their forms. Many stone monuments are covered with sculptures and inscriptions, which, in their general character, recall those of India and China, and are supposed to be of a symbolic and religious character.

Prof. G. Forbes, of Glasgow, published some calculations concerning the existence of a planet beyond Neptune. His theory was founded on the features of the orbits of a number of comets, whose aphelion distance is at about one hundred times the mean distance of the earth from the sun, which may have become permanent members of the solar system through the influence of the attraction of such a planet, as other comets have been joined to the solar system by the attraction of Jupiter. A period of one thousand years was assumed for the revolution of the planet in its orbit; and Prof. Forbes carried his calculations so far as to indicate the place where the star might be found if it existed. On comparing the catalogues, a star of the eighth or ninth magnitude was found to have been seen twice in 1857 where the planet should have been then, but not since. If the planet exists, which is not improbable, it would be extremely difficult to detect it. Supposing it to be as large as Neptune, its disc would cover only eight tenths of a second of a degree, and would be perceptible as a disc only through the very best instruments; it would shine with only one hundredth of the eighth of Neptune, (which is itself a star of only the eighth magnitude,) so that it would not appear larger than a star of the fourteenth magnitude; and its motion— $3\frac{1}{2}''$ daily—could not be distinguished till after several days of observation. Even were it as large as Jupiter, it would only appear as a star of the eleventh magnitude, and could still escape careful search for a long time.

The giving of more sleep, more fresh air and more exercise to young children is advocated by the *Rochester Herald*. It declares that they are kept in school too many hours, and shut up in an atmosphere of carbonic acid gas too much.

EDUCATIONAL NOTES

NEW YORK CITY.

THE BOARD OF EDUCATION MET MAY 4.

John F. Walsh and George F. Netter were appointed as Trustees in the 7th and 8th wards respectively. Baker, Pratt & Co. were awarded contract for furniture in G. S. 74, for \$3,722.20; and to the same parties for the same G. S. for \$7,895. (This was the highest bid and Messrs. Vermilye, Dowd and Kelley protested against such action and voted against it.) The Committee on Teachers recommended that Mr. J. R. Dey and Mrs. Eliza F. Dorsch, assistants in M. D. G. S. 10, be removed for inefficiency. The City Supt. presented the case to the committee and the testimony of the Supt. the principal and the assistant teachers was taken. Mr. Donnelly said the Trustees had removed the teachers, and asked for action so that new teachers could be appointed. Mr. Crawford said he could not vote conscientiously as he knew nothing about the case. Mr. Donnelly said the classes of these teachers had shown failures in three consecutive occasions. Mr. Crawford asked for the report of the City Supt. Mr. West said the teachers were plainly inefficient and there should be no fear. Mr. Donnelly read the standing of the teachers showing that they were marked generally only fair. Mr. Crawford asked to be excused from voting. The vote passed 17 to 1.—Coal was contracted for at \$4.93 per ton; wood at \$9.30 per cord.

The Corporation Counsel presented his bill of \$343 for examination of title of lots. Mr. Crawford thought the sum a large one. Messrs. Flynn and Wood felt it would be impossible to go back of Mr. Whitney's certificate. Mr. Crawford asked to have it referred back for information as to details. Mr. Pellew said he thought it a large sum. Mr. Beardslee, referred to the resignation of Messrs. Dowd, Vermilye and Kelly, from the Finance Committee at last stated meeting; that they were not willing to act until the matter was settled. He agreed with those gentlemen. Every committee had the right and it was a duty to state reasons for action. He asked for instruction. The Board adjourned.

Corporation Counsel charged \$343 for searching a title and it was suspected he had some favorite to whom he turned over such business. Mr. Crawford deserves credit for looking up the matter; it is a large sum for such a service.—The question now asked is what is to be done if the Committee on Finance resign. They don't propose to put up with the rebuff they have received.—The discharge of teachers is an unusual incidental meeting of the Board. If all who are only "fair" were discharged, not only, but also all who persist in ignoring education the schools would be the better for it. There are many who get places and hold them, but who never had and never will have an idea about education. Do they take an educational paper. Not if they know themselves. Mr. Dowd very justly remarked of this set "I should like to see them doing something to improve themselves."

ELSEWHERE.

THE American Sunday School Union have started 121 schools in the Indian Territory.

THE Elevated Railroads in this city last year carried 63,000,000 passengers without the loss of a single one.

Two graduates of Yale College have promised \$50,000 for the construction and equipment of a physical laboratory.

The endowment of the Case School of Science at Cleveland is now free from incumbrance. The annual income from all sources is \$37,731.53.

At the closing meeting held by Messrs. Moody and Sankey in San Francisco, \$82,000 were raised to pay off the debt on the Y. M. C. A. building.

MRS. GARFIELD is said to be the first of our Presidents' wives who could converse intelligibly with the Foreign Ministers in the court languages of Europe.

TENNESSEE, we are happy to see, has removed the stigma of repudiation that has hung over it for five years; the Legislature having passed the bill for settling its state debt.

A NEW building for the Indian girls is soon to be erected at Hampton, Va. There are sixteen new Indian students in the government school there, three of them being Apaches.

THE amount necessary to secure to the University of Virginia the McCormick Telescope and the Vanderbilt Ob-

servatory has been raised, to the great joy of the authorities and the students.

THE American of Philadelphia proposes, as a test of the capacity and inclination of American college students and graduates for practical journal sm, to give \$1,500 in prize for the best editorials, the best special essays and the best poems, written by college students or college graduates.

A PETITION to the government for shortening the school hours is being circulated in Bern, Switzerland. Two other desirable things are included in this petition for the sanitation of schools—the erection of school workshops and a more stringent insistence upon personal cleanliness.

THE average sum appropriated for the education of each child in Massachusetts has increased from \$4.71 a year in 1850 to \$13.55 in 1880. During the same time the average pay of female teachers in the four western counties of the State has increased from \$12.90 a month to \$25, while in Boston it has increased from \$31.50 to \$60.17.

THERE are forty industrial schools in Chicago for children of poor families, principally little girls, where they are kindly cared for, and taught sewing, cooking, and tidiness as regards person, dress, and housekeeping. The number of children in all of these schools is not less than 3,000. It is said that the influence of this school has become so marked that the police and car-drivers have observed a very decided change in the appearance, manners, and general conduct of the children of the neighborhood. Most, if not all, of these schools are under the charge of Church societies.

THE movement for a fourth year of theological study in our divinity schools is gaining ground. It is in practical operation to some extent in Andover and New Haven, where students have, after graduation, pursued a special course marked out for them. The fourth year of study will not be required of graduates, but is intended for such exceptional students as wish to pay special attention to "the higher and more difficult questions—whether philosophical, critical, or more immediately practical—which may be particularly engaging the attention of Christian scholars, pastors, and teachers.

THE Delaware Assembly has passed a bill providing that \$2,400 shall be distributed by the Delaware Association for the Education of Colored People to the different schools of the State. Each county is to get \$800. For fourteen years the colored people of Delaware have been working hard to get education with no help from the State. They were poor and ignorant, and without influence; but in spite of obstacles almost insurmountable they have, entirely by their own exertions, established and maintained a system of schools that would do credit to people having much more means and ability.

If the educational standard of a country is to be judged by the number of its institutions of learning, Baden stands highest among all German countries. Baden, with only 1,560,000 inhabitants, has two excellent universities (Heidelberg and Freiburg), one polytechnic school at Carlsruhe, which is considered one of the best in the world, and which is at present patronized by 22 American students; 9 gymnasia (classical secondary schools), 4 pre-gymnasien, 7 realschulen (non-classical secondary schools), 27 higher burgher schools, 8 high-schools for girls, 7 teachers' seminaries, and 45 technical schools. The primary schools number 1,937, and the primary school pupils 245,369.

BOSTON.—In round numbers, 40 per cent. of Boston's school population is in primary schools, and 50 per cent. in the grammar schools, the average cost of instruction in the various grades of Boston is: Primary, \$18.45 per pupil; grammar, \$28.20; and high and normal, \$67.42. It will therefore be seen that if our children ended their course of education in the lowest grade instead of continuing on in the higher studies, as to do so many more of them than elsewhere, the average cost of a pupil would be far less than it now is, and more nearly the same as in other places. I have no hesitation in affirming, what is the uniform testimony of all competent judges who look into the work of the Boston schools, that our city's educational system does more than that of any other place in the Union, where the expenditures are not essentially as a great for putting the best culture of the age within the reach of all children. In those towns of Massachusetts whose standard approaches to that of Boston, such as Newton, Salem and Springfield, the cost very nearly equals that of Boston.—*Green's A. TRAYER.*

MISSOURI.—The Salem Academy closed the first term of its ninth session in February. There were enrolled 240 males and 244 females, making a total of 484 students. Of this number 32 were from abroad. The counties of Dent, Crawford, Franklin, Howell, Iron, Jefferson, Shannon, St. Louis, Texas, Washington, Wright, and the State of Texas were represented. The *Democrat* says: "When Prof. Lynch first entered this school he found many obstacles in his way, but with his usual vim and determination he has accomplished great results. He has been the life of our intellectual community, and his good works may be seen and felt every day. From the fruit of his labor many of our most promising business men, and instead of the streets being overrun with hoodlums we meet enlightened honest youths who are a pride to their parents and an honor to the community. Small boys of eight and ten years can be seen wending their way to school with their algebras, histories, grammars and latin books, and upon examination one will find that the appearance is not all outward, for their minds are stored with the contents; and these advantages are not alone to the rich, but many poor families are represented in these upper classes. The second term was opened last Monday with a larger roll than has ever been witnessed, and promises to be yet more successful. It will be a bad day for Salem when the services of Prof. Lynch are dispensed with, even should the directors be asked to double his present salary." (That is the way a newspaper should talk.—A. M. K.)

ILL.—The State Superintendent of Public Instruction recommends that \$310,000, be appropriated for the erect of three more normal school buildings, in as many different parts of this State. He says suitable grounds can be obtained, and a building every way adapted to the wants of a normal school of four hundred pupils, and the model school, which should be connected with every such institution, can be put up and properly furnished for less than \$10,000. There are now 22,255 teachers in the public schools of Illinois. Of these 17,347 were employed last year in the ungraded schools. Recruits of this sort enter the ranks of teachers as empirics. They are to learn how to teach at the cost of the tax-payers in the most irrational and expensive way possible, picking up their trade at the expense of the public financially, and at the expense of the children mentally and morally. So the question, "what shall be done to improve the country schools?" comes up from all parts of the country. It is safe to affirm that very little can be done to improve them so long as they are filled, from year to year, with pupils taken from these same schools utterly untrained for their work. But give them instructors schooled for their mission, and everything else can be trusted to their common sense and the counsel of a good county superintendent. All other countries that have established a system of free schools have adopted this doctrine as the corollary of such a policy, and provided for the training of teachers. France has 86 normal schools; Italy, 115; England, 41; Little Belgium, 23; Switzerland, 32; coming back to our own country, Massachusetts, with 311,528 pupils enrolled (more than her total population of legal school age), and with only 7,587 teachers, has 5 normal schools; Illinois has two only.

OTSEGO CO.—The county Teachers Institute was in session in this place during the week commencing April 25, was largely attended, over 200 teachers present. A large per cent. of applicants received licenses than at any previous examination, although a higher grade of questions were given. Commissioners Miller and Tuthill are live men, attention to their work, earnest enthusiastic and wish the teachers to do good work. Under the able instructions of Professor's Lantry and Kennedy, no teacher present could fail to receive special benefit. They will be held in kindly remembrance by the teachers of Otsego Co., and the best wishes of the Institute follow them. They have sown the seeds of practical knowledge which we trust will spring up and yield a rich harvest in the advancement of the schools in Otsego County. It is the wish of all they may return to us in the capacity of instructors as our next Institute. Good singing was one marked feature of the Institute. The *Educational movement in Otsego County* is increasing able teachers are taking hold of it and the grand work is going on. Practical common sense teaching is soon to take the place of the meaningless rote teaching of the past Otsego County, will come up to the standard of the Teachers Institute. The cheering feature is that the Comrs. have back bone.

OHIO.—The Ohio Teachers' Association will hold their

32 annual meeting, June 28, 29 and '30, at Put in Bay Island in Lake Erie, unless that place shall be unable to furnish the necessary accommodation, which will be determined in a few days by the Executive Committee.

The program arranged is as follows:

Supts. Section.—Presidents Inaugural Address, Supt. W. J. White, Springfield, Ohio. Paper—"School Examinations;" Supt. H. N. Mertz, Steubenville, O., Discussion on the paper opened by Supt. J. E. Sater, Wauseon, O. Paper—"Clerical Work of Teachers;" Supt. Thomas W. Harvey, Painesville, O., Discussion opened by Supt. A. J. Rickoff, Cleveland, Ohio.

General Association.—Inaugural by Pres. John Ogden, Worthington Normal School. Paper—"Mental Science for Public School Teachers;" Pres. W. H. Scott of Ohio University at Athens, O., Discussion opened by Supt. Samuel Findlay, Akron, O. Paper—"The Spirit of the Teacher;" Supt. E. F. Moulton, Warren, O., Discussion opened by Prin. Charles L. Loos, Dayton, O. Paper—"State Association;" State School Commissioner D. F. DeWolf, Columbus, O., Discussion opened by Supt. John Simpson, Mansfield, O. Paper—"English Literature for School Teachers;" Hon. J. J. Burns, Columbus, O., Discussion opened by Principal G. A. Carnahan, Cincinnati, O. Paper—"Science as a Means of Culture;" President Edward Orton, of the State University at Columbus, O., Discussion opened by Supt. C. E. McVay of Mt. Healthy, O. The annual address will be given by the Rev. J. E. Twitchell of Cleveland.

The officers of the Association are President, John Ogden of Worthington, Vice Presidents, E. A. Jones, Massillon, T. C. Flannegin, Pomeroy, G. W. Welsh, Xenia, Mrs. A. B. Johnson Avondale, Miss Esther Widner, Dayton, Sec. H. S. Doggett Hillsboro, Treas. A. G. Farr, Columbus. The Executive Committee who have the management of the business affairs of the Association, are G. W. Walker of Lima, President, M. S. Turrill of Cincinnati, Secretary, W. W. Ross, Fremont, M. S. Campbell, Youngstown, J. H. Lehman, Canton, and M. R. Andrews of Marietta.

MICH.—The year at the Normal School has been one of the best in its history. This "new departure" is based upon the theory that the school should as far as possible be a professional school for teachers; that the academy preparation in the branches to be taught should mainly be gained in the ordinary public and graded schools; and that the Normal School should supplement this preparation by brief courses of review and practice-teaching, together with thorough instruction in good methods from the experienced teachers of its faculty. It is thought that with proper preparation in the branches to be taught, a year of such training and practice-teaching at the Normal School will be sufficient to enable the student to teach successfully in the grade for which he is prepared. It is held that students should come to the school with definite preparation for certain work, that they should be encouraged to hold strictly to that purpose and secure, without any delay or diversion, the training for the grade in the school service for which they have prepared. In this view of the office of a Normal School, is a training school rather than an academy or college, and it should yearly send out hundreds of trained and practiced teachers who will immediately find themselves at home in the school-room. Dr. Malcolm MacVicar, who assumed the Principalship of the school soon after the opening of the present school year, has entered with enthusiasm upon his work, and has most efficiently co-operated with the Board of Education in all their plans. The school and the state are to be congratulated upon the accession of so scholarly and efficient a leader in the work of the professional training of teachers. The suggestions and observations recorded in the report of the Committee of Visitors are worthy of special attention.—*State Supt. Report*

PROVIDENCE, R. I.—The School Committee make a report that has some good features in it. Instead of condemning Quincy methods, they tell us that "all the principal points which are now claimed for Quincy" were set forth by Supt. Leach in 1878. The number of towns that claim they are to-day in accordance with "Quincy ideas" is very large—all agree the ideas are good except the Brooklyn superintendent. What is peculiar in the Providence report is that not one word is said about the teachers' UNDERSTANDING or studying EDUCATION! Would one believe such a thing possible? It does say the spirit of the Superintendent has been participated in by the teachers. Attempts were made by many who had themselves

but a meagre acquaintance with natural history to awaken the interest of their pupils by exhibiting to them and explaining in a brief way various natural objects. About two hundred teachers attended during the winter of 1878-9 a course of lectures upon practical mineralogy, studying with the objects in hand; many of them have since made handsome collections of their own, companies of ladies going several miles in pursuit of specimens. This knowledge they are eager to increase and to apply, as opportunity offers, for the instruction of their pupils. In one grammar school, especially, much pains has been taken to interest and instruct the scholars to inquire into the natural history of the various objects with which they are surrounded, and with encouraging results.

Superintendent Leach says a most valuable weekly exercise has been introduced in some of our schools with the most gratifying results. The teacher or one of the older pupils reads to the class from some standard author a choice extract, judiciously selected and adapted to the tastes and capacity of the class. When the reading is finished, each pupil is required to write on his slate or on paper, in words of his own selection, the thoughts and ideas contained in this piece. This is one of the best methods I have ever known in testing the ability of pupils to extract thought from language, and to give it expression in words of their own selection. I would earnestly recommend this practice to all teachers in every grade of schools.

He says "that children should never be taught to pronounce or to spell a word without associating its meaning, may be plausible in theory, but it is utterly impossible in practice. There is a very large class of words used as connectives and modifiers, with which, when standing alone, no definite ideas can be associated, and their meaning and use can be learned only from the composition and the structure of sentences.

"I would not by any means recommend that all fiction be discarded from our school libraries, or that it be entirely ignored in the education of the young. Works of the imagination hold a very high and important place in our literature. Nowhere, except in the sacred volume, are there such sublime truths, such lofty conceptions of the true, the beautiful and the good, such noble patriotism and such deep sympathy with suffering humanity, as are often portrayed in living truth and glowing eloquence on the pages of the poet and the novelist. To such gifted minds are we indebted for much of our choice literature.

"But the descent from these pure regions of taste and imagination is easy and often rapid, to the sloughs and filth of brutish minds—the vast difference and broad chasm between these two classes of fiction should not be overlooked or forgotten.

"There is often a charm and fascination in fictitious tales that excite and foster in the youthful mind, a sickly sentiment and a morbid taste for what is unnatural and demoralizing. To gratify this perverted taste, writers abound, whose principal aim is to arouse to the highest pitch the strong passions, by the recital of deeds of piracy and murder, and the portrayal of ghosts, goblins and hideous monsters, equalling if not surpassing the depraved conceptions of a Dante or the vilest demons of heathen mythology. Such intellectual food should never be allowed for youthful minds.

"Very many of the popular tales and serials that are now supplied in such profusion, give false views of life, its duties and responsibilities, making success to depend not on industry, skill, patient toil and persevering efforts, wisely directed, but rather upon a fickle and capricious fortune, who is represented as bestowing her favors without regard to the diligence and energy with which they are sought, or to the worthiness of the recipient. The youthful mind also often becomes so familiar with, and is so impressed with what is real and imaginary, as to lose that reverential regard for truth which is the basis of all that is pure and noble.

"The mental habits thus formed, often have a decided influence on the future character of the young, in giving birth to, and in fostering those dreamy speculations and that gambling spirit which are now so rife in almost all business transactions. In not a few of our popular stories there is lurking an insidious poison that impeccably vitiates the taste, and corrupts the purest minds.

"Pupils, when attending school, should read sparingly of fiction, even of the purest kind. From careful observation and diligent inquiry, I am fully persuaded that a large share of the ill health of pupils that is complained of, is to be attributed, not so much to the severe tasks imposed in

the school-room, as to sensational reading and other excitements out of school, and to the neglect of the fundamental laws of health.

"No one has ever risen to eminence in any department of knowledge, who has not sedulously and perseveringly cultivated his memory by storing it with the rich treasures of the past. I would say then to all teachers, study to give vigor and power to the memory of your pupils. Invigorate it by all judicious means, but do not abuse it. Rich gems only should be securely deposited in a valuable casket; and, teachers, be not deterred by the fear of the invidious epithet of 'gramming.'"

LETTERS.

There seems to be such a general awakening on the subject of teaching, and especially of primary teaching, that I supposed only in the very backwoods you would find the teacher who did not take an educational paper, attend the institute, and study methods. Imagine then my surprise on visiting a public school in a city which prides itself on its schools, to find two, and I don't know but more, of these teachers there. In the room of one of these confusion reigned supreme; not from any want of love and sympathy between teacher and pupils, but from lack of employment. While one division recited the others had nothing to do, and, of course, could not keep still; but they were a happy set of little fellows, for they could busy themselves pretty much as they liked, without fear of punishment. In the next room, however, they met with a sadder fate. Here, likewise, they lacked employment, and here also they must do something, and so they stuck pins in the neighbors, whispered, laughed, made faces and told the teacher of each others capers, etc. But here the poor teacher was sorely vexed with such performances, and no sooner did she settle accounts with one miscreant than another was ready to be taken in hand. O how hard she did scold, and how cross and sulen the children looked, and what horrid faces they made at her when she was not looking! For the life of me I could not tell which I pitied most, teacher or pupils; certain I am that a great sigh of relief escaped me when the last one of the majority that had been kept after school, and allowed to go home one by one as their time of expiation ended, was allowed to depart.

This teacher really tried, to the best of her ability, to make those children behave and study; but she did not know how to do it, and she did not know that she could find plenty of help if she would only look around. She did not take a paper, and so did not know how many ways there are of keeping children employed, of awakening an interest by some general exercise, and the many ways of varying the lessons, and so making them interesting. Just a few blocks off an institute was in session. Prof. Lantry and Northrop were dispensing this needed knowledge lavishly upon the ears of eager listeners, but these teachers were not there, the board would not give them the time.

If some member of this board would just step into the Quincy department of the Lansingburg schools, and then into his own primary department, he would scratch his head, and not vainly, I hope, to ascertain the cause of this marked difference. The Lansingburg board sends its teachers to attend the institute, and they attend. E. B.

I enclose a copy of the minutes of the last meeting of a society in this school which meets semi-monthly. It is entirely under the control of the students, the faculty are honorary members. In addition to this we have a reading club in the school composed of eighty members, who are equally divided, and one on each side reads a selection just before noon each day, while the opposite side notes every error in the reading that they discover. The reading over the criticisms are read, the other side, i. e. the reader's side, having the right of challenging any criticism offered. This, not only improves them in reading in public, but the selections are generally instructive. They are selected from various authors, standard, ancient, modern, current literature, magazines, papers, etc., and the entire school suspends study for the fifteen minutes thus used by which they are prepared for the noon lunch or which all partake with a relish enhanced by the pleasant time. There is evidently a good work in progress here. These young men and young ladies will not be all failures, indeed I think the greater part will be very successful in life. This is our text, "Prepare for real life." Some fifteen will graduate in the Business Department this session. How I wish other communities were blessed

with as good schools as this, and if possible better. There is a large crop of young ladies and gentlemen in this and surrounding counties ripe for the teacher's sickle, and they need gathering in from every hill and dale.

J. M. COULSON, Tenn.

(The enclosure is a fine sample of penmanship and the exercises must have been delightful. We echo Mr. Coulson's wish! Why are they so interested in Alpine Academy? They have genuine teachers. Ed. S.J.)

I write upon the blackboard a few leading questions upon the most important events, characters, or places, in the history of a certain nation or country, and let them remain a week. At the end of that time I write upon the blackboard the names of all who have handed in correct answers, with the number of questions they have answered correctly, and I mark with a star the one who gives in his own language the best answer to one or two of the questions, which I designate by a star for that purpose.

We have a literary society in school, which is carried on solely by the children, who elect their own officers, make out their program and transact whatever other business is necessary, the teacher meanwhile occupying a back seat, and useful only as a reference book in case any question arises which is beyond their power to settle. Occasionally we have debates, and a paper, into which we put the news of the school-room and vicinity, stories if we can write them, one or two of the best compositions, and the best answer to the questions in history spoken of above.

E. B.

ACCORDING to a lecture by Dr. J. O. Lodge, the principal argument in favor of the theory that light is an electrical phenomenon, is derived from the fact that the rate at which light is propagated, and the rate at which an electromagnetic current should travel, as determined from calculation, agree exactly. The theory was first conceived, indefinitely, thirty-five years ago by Faraday, who, having perforated the poles of a magnet to allow a beam of polarized light to pass through from one to the other, and having interposed a peculiar glass, observed that a remarkable faint illumination took place when the light was stopped by an analysis, and the magnet was afterward excited. Faraday found that other transparent media than glass would show the same phenomena, but in less degree, under the same circumstances; it has been lately observed of air, and even of opaque bodies, as magnetized iron, when they are yet thin enough to admit the passage of light. Dr. Lodge speaks of the transmission of light, or of views and pictures, by the electric wire as something which although it has not yet been effected, "seems already theoretically possible, and may soon be practically accomplished."

EDUCATIONAL journals constitute a mighty force in uplifting the world. They generally have had a very short and troublous existence, but nevertheless the good they have done cannot be estimated. Even though they have not been appreciated, their work remains, and will remain to the end of time. A teacher who neglects to support educational journals deserves to go to the poor house, for he is deliberately undermining his own foundations. He might as well knock out the underpinning of his school house. He deserves the fate of Tantalus, forever asking, but never getting the refreshing water of a decent salary. We have no sympathy and less respect for a teacher who will not take at least one first-class educational journal, and pay the full price for it in advance.—*Barnes' Ed. Monthly.*

EDUCATIONAL JOURNALS.—Normal school pupils should be required before graduation, to become thoroughly acquainted with the spirit and work of our school system, by reading regularly some of the best educational journals, and county superintendents and commissioners would popularize school supervision, if they would, by personal efforts, place an educational journal in the hands of every teacher. The influence and usefulness of periodical literature are but beginning to be understood and appreciated by superintendents, principals, and teachers, and it is not strange that, in time past, many of them have neglected to read and circulate educational journals.—*Supt. A. L. Wade.*

"There's such a thing as sinnin',
In over loadin' children's underpinnin'."

"Education embraces the culture of the whole man with all his faculties."

EDUCATIONAL MISCELLANY.

How to Examine a Plant Microscopically.

A Lecture delivered before the Leeds' Chemists' Association, Feb. 10th, 1881, by H. Pocklington, F.R.M.S.

First, then, as regards the instruments necessary. Let it be said at once that a microscope quite competent for the work of a plant microscopist, in all excepting a very few points, may be purchased for a sum not exceeding \$25.00. All work can be done with very simple and inexpensive appliances; it is a question of the workman much more than of his tools.

As for lenses, an inch objective and a quarter-inch, or fifth, are needful. If a 2 in. and an eighth can be afforded in addition, so much the better; but they are not essential in nine researches out of ten. Beyond the microscope, he will want a few glass slips, 3 in. by 1 in., a few thin glass covers of different sizes, a few watch glasses, and small earthenware pots furnished with lids, such as are used for putting up tooth-paste and the like, a few stoppered bottles of about 2 oz. capacity, and a few pieces of glass tube, such as is used in feeding-bottles; a sharp razor or two and a few needles stuck in pencil-holders, a wash-bottle, such as is used by chemists, which, of course, you can easily make out of a jelly bottle, a piece of cork and two glass tubes, a little gold size, Canada balsam, glycerine, and a few other matters which I will name as I proceed. These will answer all your purposes, and fully equip a more than usually well-furnished working laboratory, and will be quite sufficient for all the work an ordinary microscopist is likely to do.

I will now ask you to prepare for a first lesson in microscopy, with the assumption on my part that you have learned only this much—that you can take the microscope out of its case, screw on the objective, and examine a ready-mounted slide with ease, but have not made any use of it in practical work.

Whenever it has been my good fortune to take an embryo microscopist in hand, as during the last score years has happened occasionally, I have made a special point of two things; first, begin with something simple and always obtainable; second, let that something be something which, besides presenting the qualification of being always procurable when wanted, has a habit of frequently turning up when not wanted. Therefore, I have begun with fungus spores, a course which is nowadays followed from a somewhat different reason, in all well drawn-up courses of biology, and is, as you know, laid down in the South Kensington Botany and Biology syllabus, as also in Huxley and Martin, Rutherford's and other text-books. I will begin, then, with the examination of yeast.

Procure a little yeast from any brewer, or sow German yeast in sugar-and-water a few days before you want it, and having arranged your microscope with the 1-4 in. objective (or better still, a 1-5, 1-6, or 1-8, if you have one) ready for use, clean a few glass slips and covers. Place a little yeast upon one slip, add a drop of water, cover with a thin glass, and examine. Probably the first thing you will call the attention of your guide, philosopher, and friend to, if you have one by your side, will be some circular, ring-like bodies, with bright or dark centres, which appear much more interesting than the oval particles near them. Your guide will probably withdraw his eye from the microscope very promptly, and utter with unusual energy, and just a suspicion of contempt, Oh, they are bubbles. Never you mind: they are all well worth your study, and the best thing you can do is to examine these said bubbles very closely, and make so thorough an acquaintance with them as shall enable you to recognize them ever after, for assuredly you will find them occurring in the least expected places. But, having disposed of the air-bubbles, begin to examine the oval particles of which the yeast consists; make drawings of them; observe how some of the corpuscles are quite separate and distinct, and how some of them have little buds attached to them, and some bigger buds; how some of them appear to have little fluid hollows, or vacuoles in them, and carefully observe whether there are not little bits of something floating, as it seems in the fluid of these vacuoles, and finally measure these corpuscles by means of the eye-piece micrometer. Having thus obtained a superficial knowledge of yeast, you may proceed a step further. First make a solution of Judson's magenta in water to about the color of red ink. Place a drop of this solution at one edge of the thin cover the yeast-cells, and apply a piece of blotting paper to the opposite side of the cover, when the water on that side will be withdrawn, and the magenta solution will follow it under

the cover. Examine afresh, and note that the contents of the yeast granules become deeply stained, but that the vacuoles do not; press the cover a little, and you will see that the contents of the yeast-cells are expelled, deeply stained, having a sort of bag, which, if stained at all, is stained very slightly. Now prepare a fresh slide of yeast in water, as before. Then make a solution of iodide of potassium in water in about the proportion of 3 gr. to the ounce, adding, when dissolved, 1 gr. of iodine. Apply this to the slide, as before, and observe that the contents of the yeast-cells are deeply stained brown, the cell-bag slightly yellow. Next take some yeast, as dry as you can, and stain it with tincture of iodine, place it on the slide as before, and apply tolerably strong sulphuric acid. Notice that the cell-walls or cell bag is stained purple and blue. Having done all these things carefully, you may, if you have time, apply strong solutions of caustic potash, of acetic acid, solution of carmine, and various other things, and carefully observe the effects; but for my present purpose we have done enough, and have learned that there is an outside bag of these yeast cells which stains blue with sulphuric acid after iodine, and that their are contents which do not, but do stain intensely with iodine alone, and with magenta. The outside, we may learn further, but must take for granted now, is composed of a substance called cellulose, and the inside of a substance which is called protoplasm. The one is the horny substance, the other its dwelling or environment. Having learned this much, we have gone a considerable distance towards becoming plant microscopists; for we have learned that a plant consists of a substance which stains red with magenta, brown with iodine, can be squeezed out of its envelope, and otherwise acted upon, without respect to its environment, which substance we call protoplasm; and of a box, bag, or envelope in which the substance is contained, that is composed of a substance which turns blue when acted upon by sulphuric acid after being stained yellow by iodine. That is to say, a simple plant cell of yeast is so constituted. This is not the simplest form of cell-life, for we have cells without cell-walls; but it is sufficiently elementary for our purposes to-night. The next question to be dealt with is that as to the nature of what we call plants in everyday life. If I were to-night in the position of a lecturer opening a course of lectures which would extend over several weeks, I should take you over the region of botany step by step, and show you as best I could how the one-celled plant became the two-celled plant, and how the big tree passed from a unicellular condition into the very multicellular oak or elm; but as it is, I must proceed by leaps and bounds, and ask you to pass at once to the examination of some homely plant, keeping before you the main facts arising out of our examination of the yeast-cell.

If you take any succulent fruit, such as a strawberry for instance, and make a thin slice or section from it, placing it under your microscope, you will observe that it consists of a number of little bags, larger than those of the yeast-cells, but having a rough general resemblance to them, and more or less globular in form—especially in that part of the slice or section which is towards the interior of the fruit. These cells are not single or isolated, but coherent, and you will readily surmise that the difference in shape which they manifest are largely due to the circumstances in which they find themselves; i.e., the normal spherical form is more or less developed by pressure. If you apply the chemical tests I have just described to such a section, you will find that the contents of the cells stain brown with iodine as before; but you may, perhaps, perceive here and there in the contents of the cells small specks of blue, which I daresay you will suspect to be starch granules, and very correctly. You will find, further, that the membranes of these cells stain blue with iodine and sulphuric acid, and will surmise that the character of the cell-wall and cell-contents in both cases are essentially identical. You may now examine the fruit more in detail, and you will find that the cells forming the membrane of the fruit differ very widely from those forming the soft interiors, but that they do not materially differ in their chemical reactions. You may thence be prepared to meet with cells of very different shapes, but of essentially the same biological structure, that is, they will contain protoplasm and have cellulose walls. By-and-by you will find that in mature growths of the higher plants you may find cells which, at the time of examination, contain no protoplasm, and which manifestly have a wall which is either composed of something different from cellulose, or of cellulose that has partly changed its character; but these new facts will in no way lead you, from the great fact—that the cells were once

such as I have described, and that what you are then examining are post-mortem cells, in which the active processes of life are extinct, or at least practically so.

With this much before us, viz., that cells may be found coherent and not isolated, but manifesting the essential characteristics of single cells, and that they may be found manifesting great changes of form, due to pressure and other causes; and are also found as dead cells, minus protoplasm, and plus something else, we may pass to a further stage in the examination of a plant—that is, to the examination of the stem or root of one of the higher plants. Taking one which you may find in the drawers or cupboards of, I presume, every chemist's shop in the country—the common liquorice-root. A fresh specimen is best for examination, but a dried one will answer the purpose, or you may take any stem or root that you like, and work the subject over at your leisure.

Taking, then, a stem of liquorice-root, make a thin slice through it in a direction at right angles to its length, and place it on the slide in a little water. Possibly you cannot make much out of it, as the cells appear to be filled up with all sorts of things. In this case, which happens very often with other vegetable preparations, run a little solution of caustic potash (liquor potassa) under the cover, hold the cover in place by an American clothes-peg, or, better still, a small clip of wire, and heat the slide for a few moments over a spirit-lamp till the liquid boils; then allow it to cool, and run water in under the cover by the blotting-paper method till you have removed the caustic solution. You will most probably find the section is cleaned, so that you can examine the shape of the cells of which it is composed. If it be not clean, run a little dilute sulphuric acid (1 acid to 5 water), and heat as before, removing the acid immediately. The section will then assuredly be clear, and if you fail to observe the sharp outline of the cells, you may be satisfied that the section is too thick, and the best thing you can do is to cut another. Having thus secured a thin and transparent section, you may proceed to its examination, beginning at the center or pith portion. You will observe, first of all, that this occupies but a small part of the area of the root, probably not more than one-fifth or at most one-third of the diameter; that it is principally composed of cells, which are nearly circular in outline, and when you come to examine a section cut longways of the stem, you will find that these cells are nearly globose. You will observe that these cells are relatively of large size as regards the other cells in the stem, and that these walls are much thicker than were the walls of either the yeast-cells or the grape-cells, you previously examined; and that neighboring cells do not quite fit in with each other, as is, indeed, a necessity of the case arising from their shape, although this has been somewhat modified from the true globe or oval by pressure. If you run in a little magenta solution you will find that these thickened cell-walls stain a little more deeply than the fruit cell-walls, but on testing with iodine and sulphuric acid they turn blue, proving them to be cellulose. Running in iodine alone, you will notice that certain apparently granular bodies turn to the characteristic blue of starch, but that certain other bodies present do not. (If you have used acid in cleaning the slide, you will not find these bodies at all.) Examining these last bodies closely with the $\frac{1}{2}$ in. objective, you will observe that they are distinctly crystalline, and on the application of acid they dissolve with evident evolution of gas, and you may safely assume that they are crystals of some salt of lime.

Taking a section which you have not boiled or cleaned, and examining the starch granules of which you have only found traces in the other preparation, you notice that they are of very tolerably uniform shape and size. In shape, nearly egg-shaped, with a distinct elongated cavity-like mark, which is called the hilum, at one end, and if you use your polariscope you will find that no black cross is perceptible, and that the granule is nearly black on the black ground of the polariscope. The crystals, similarly examined by polarised light, become very brilliant, and are beautifully colored.

Having thus examined the central portion of the stem, we take the next area, which extends over about one-third of the diameter of the root, and we at once notice that its structure is essentially different from that of the central portion: the cross section of the cells show that they are of very different size. Many of the cells are small, have very thick walls, and others are much larger and have, relative to their size, much thinner walls, and that some cells run in lines from the centre outwards. If we run in magenta, we find that all these cells stain much more in-

tensely than the cells of the central portion, but some more so than others, and, running in iodine and sulphuric acid, we observe that they do not stain blue so readily, so wholly, or so intensely as the walls of the pith. But in a cross section we cannot make out much more than this about them, so we will examine a section cut longways; that is, a longitudinal section. Examining this section, we notice that nearly all the cells are of greater length than their small cross section would lead us to expect; that, in fact, they are many times longer than they are broad; that those cells which were of greater diameter are extremely long, and, in fact, do not look like cells at all. We will examine small ones first. We notice that such of them as form the lines running from the center of the stem to the outside, and called the medullary rays, have tolerably thin walls, and answer to the tests of our chemicals pretty well after the fashion of the fruit cells, making allowance for the evident superior thickness of wall. The long cells with small cross section, we notice, have moderately thick walls stain pretty deeply with magenta, and stain rather dark brown with iodine. They are not quite the same as ordinary cells of cellulose, and we should find these characteristics much more marked if we were examining a section through an oak or other hard-wood stem. Testing such cells with sulphuric acid after iodine, we do not get the complete cellulose reaction, but if we test them with acid nitrate of mercury, we get a distinct red coloration which may lead us to suppose that some deposit other than cellulose has been made on the walls or in the walls of such cells. This thickened matter we call lignine. All the cells hitherto examined have tolerably even walls without roughness or perforation; but we observe that the large outlined cells have thicker walls, and that there are numerous markings on them which look like perforations, and we notice also that the walls which should have formed the terminals of these cells have been either wholly or partially removed, and that they run continuously as tubes or vessels for some distance down the stem. These cells answer our chemical test similarly too, but more intense than the woody cells last described.

Outside this layer we find a series of looser tissues, chiefly composed of thin walled cells, globose or changed to cubical, with contents somewhat the same as those of the pith, and, interspersed with them, aggregations of small outlined cells, which prove to be long tube-like cells when examined longways, and finally, towards the outside, layers of cells containing little or nothing and much compressed, till at last the backs and fronts of the cells nearly meet.

To sum up all this and apply it to practical purposes, we may state it in the form of an answer to a question: "What course am I to pursue in making an examination of a stem by means of the microscope if I wish to draw up a description of its microscopical structure? leaving out of account the results of my chemical tests which I have applied to make myself familiar with the fact, that all cells had something in common, or not having it now, have had, or will have, if they live long enough, and have the same function to serve."

We make careful sections in three directions, across the axis, vertically through the axis, vertically at right angles to the last, midway between the axis and the pith, and carefully examine each of these sections with a view to answering the following interrogations.

First, Is there any pith? If so, are its cells colored or not? What is their general shape and size? Are their walls thick or thin? Have they any markings, in the form of perforations or otherwise? Are there any very thick-walled cells in the pith? (as in Hoya)? Is there any starch in the cells? If so measure the granules, and describe their shape and action upon polarised light when immersed in any given medium. Do the cells contain any crystals? If so, what is their shape and arrangement within the tissues? Test the crystals microchemically, in order to learn their composition. Estimate their average number in different sections.

We must next attack the layer of tissues immediately outside the pith, and ascertain whether or not that layer forms what is known as the vascular sheath, and is chiefly composed of vessels which in long section appear to contain a spiral fibre or fibres, loosely wound round their interior, and are known as spiral vascular vessels in consequence. If the spiral fibre be present, we must ascertain whether it is single or double, and wound in a right or left hand direction, or one fibre one way and the other fibre the other. Does the sheath completely encircle the pith, or does it form the basis of wood wedges extending into

the general structure of the stem? We may now examine the medullary ray system; that is the series of cells extending in line from the center to the circumference of the stem, like the spokes of a wheel. Are these rays made up of one line of cells, or of how many, arranged side by side? Are the walls of these cells pitted or not? What are their cell contents (paying special attention to any crystals that are present)? How far are they apart on the average? Do they all extend to the circumference of the stem? We next examine the vessels found in the woody layer. Are they pitted or not? are they barred? septate or not? what is the size? Are they numerous, and how distributed in the other tissues? Next, as regards the wood cells. Are these pointed at their ends or nearly square, thick walled or thin, dotted or not? Finally, what is the general shape of the wood wedge between each pair of rays?

Then comes the examination of the bark, in which we have to follow very similar lines, paying special attention to the shape and situation of the fiber bundles, and special contents of any of the cells, or special modification of them by secondary accretions.

The study of "life in plants" is not so attractive, because not so sensational as many other studies, the results of which have from time to time been brought before you. Yet you may find yourselves, flower in hand, uttering as earnestly, if not as beautifully, the thoughts of our great poet:

"Flower in the crannied wall,
I pluck you out of the crannies,
Hold you here, root and all, in my hand,
Little flower—-but if I could understand
What you are, root and all, and all in all,
I should know what God is."

The Highest Education.

"Thus far the education of the intellect is the education that has most occupied the attention of the world. If men were left, without schools, to the experience of life, to their business and to contact with the world, they would get a considerable intellectual training, to a certain extent—the power of observation and judgment would be quickened, the memory strengthened, and the thinking-power developed. But this would be wholly inadequate to a civilized state. Very early, therefore, in the history of progress, men create schools in which intellectual education is furnished. To some extent, too, these schools educate the other faculties of the soul. Besides, schools for moral and religious instruction, which looks to the feelings and the will rather than to the intellect, are also organized. Now, it so happens, that no school can exist that calls out a single faculty. There may be one scholar and one teacher, but the relation of the two will influence feeling and choice. Or if a student shuts himself up with the dryest book in the coldest chamber, he can not exclude the elements of emotion. A lesson and a class in mathematics call out the will and the sensibility; on the other hand, the most direct appeals to the feelings and to the will must reach their destination by way of the intellect. But, generally speaking, it must be said that what is commonly called a school is primarily a place of intellectual education. That is the direct and conscious purpose for which it is organized; and the training of the sensibility and the will comes indirectly, and is often overlooked altogether.

We hear much of the science and the art—the theory and the practice—of education; and what people who use these expressions have in their heads is intellectual education. We hear much, of course, of study and methods of instruction; and everybody understands that these phrases have reference to intellectual results. Who ever heard of a school for the feelings? Who ever saw a course of training for the will? I do not say that such schools would be useful, but I do say, if not, only one man in a thousand can say why not. And the inability of the nine hundred and ninety-nine is owing to the relatively slight attention that these branches of education have hitherto received. In such a community as Ohio, nearly every parent asks "What shall I have my child study?" The question looks to an intellectual preparation for the future. But what proportion of these have ever even asked the question, "What training does my child need, that its temper, its faith, its hope, its patience, its courage, its independence, or its resolution may be properly educated." Of course, the majority of these people do a great deal for their children in some or all these ways; this they do by correcting bad habits and encouraging goodness; but, generally, they work without the guidance of any general ideas, and

often in the most inconsistent and fitful manner. The fact is, these branches of education are, in a large measure, left to the facts and forces that exist and play for a wholly different purpose. Nature (including human society and life in term) does the work, and perhaps as well as parents without ideas could do it. Were the question, "How stiffen a limber will?" or the question, "How check a headlong hope?" put them for answer, they would be dumbfounded. These questions, and many others like them, are indeed discussed in the books of the philosophers; but there has been next to no popular discussion of them. Even the school text-books on Mental Philosophy often embrace only the intellect. But that all these subjects lie without the field of education science, is well known to every man who has given them careful attention; and there is no reason inhering in the subject matter why we should not have a popular theory and practice that shall embrace them. If any one be curious to know why our common science of education includes no more, he may find the information in the relatively undue estimate now set upon intellectual prowess and education. "At first," says Dr. Mark Hopkins, "men worshipped strength of body, physical energy. The man who had the greatest power of muscles was the hero. The next step is the worship of intellect. Disputants and intellectual prize-fighters become heroes. Great debaters, pleaders, orators, writers, become the great men, irrespective of character. This is our present state. No nation has got beyond this. No doubt the time will come when this state of things will be looked back upon as we now look back upon the ascendancy of force."—*President B. A. Hinsdale, in Ohio Educational Monthly.*

FOR THE SCHOLARS.

The New Scholar.

Elbert Collins had never been marked absent or tardy since his first going to school in September, and it was his ambition to finish the whole year without a "mark," partly because he liked to be prompt, and partly because he thought it would be so nice to see his name in the paper at the end of the year.

December had come, and the short mornings were very lively ones in his mother's little kitchen, because of so many things to be done before the nine o'clock bell. There was the wood-box to fill, the canary to feed, and generally the cradle to rock; while the mother attended to such work as could be done best while there was some one to look after the baby. On this particular morning, however, the mother had gone to Mrs. Brown's, around the corner, for a cup of yeast, and had become so interested in a recipe for chocolate cake, a pattern for a boy's blouse, and the pound party at the Methodist minister's, that she entirely forgot the time of day.

Meanwhile little Elbert, with his overshoes and scarf on, and cap in hand, rocked the cradle, and kept his eyes on the clock. Five—ten minutes passed away. The long hand was crawling alarmingly near last-bell time. He tied his scarf, pulled his cap over his ears, and rocked harder than ever. Still no mother. Then he went to the door, looked anxiously toward the corner, and sent out a lusty shout: "Mamma-a-a, come ho-o-ome!" but no one responded except the baby. "O dear! dear!" he exclaimed, as he rushed back to the cradle; and just then his expectant ears heard the first slow cling-clang of the last bell. It would ring for five minutes; the school-house was only three streets away, and there was time enough yet, if he could only start. One thing was certain—he would never leave his little baby sister. He remembered a story of a poor baby who was burned to death because her brother, who had promised to take care of her, left her, and ran out on the street to play.

He went to the door and shouted again. It was something like the case of Casablanca. But when two mothers are talking about patterns, who ever knew them to notice every little outside noise? Elbert's shout ended in a big sob. A man going to lose his entire fortune couldn't feel worse than this little fellow did, with that dreadful "tardy" mark hanging over his head.

Then a happy thought flashed into his mind. Running to the cradle, he caught up the baby, scattering pillows and blankets right and left, bundled an old shawl over her, and snatching her half-filled milk bottle, dashed out of the house, and ran off in the direction of that clanging bell as fast as his stout young legs could carry him. The baby was a little mite, only two months old, and Elbert was nearly six years, and large for his age.

He met two women whom he knew, who commenced, "Why, Elbert!" and "What on earth!" but he bounded past them, and reached the school-house just as the

bell gave its last clang, and handed over his funny burden to his astonished teacher.

"I couldn't leave her, and I couldn't be late. She'll go to sleep, and be real good," he said, as the teacher began to unwind the shawl.

And then the whole room saw a surprised, half-smothered-looking little baby, still in her night-gown, one bare foot sticking out, and her little fists tightly clinched, as if defying anybody to send her home.

The teacher was a good-natured young lady, and she laughed so that she almost dropped the baby on the floor, and then the whole room laughed, and finally Elbert joined in; for he was glad he had escaped the tardy mark, and the baby certainly did look funny in school.

Of course, there could be no order. Nearly all the scholars had babies at home, or were well acquainted with those of their neighbors; but they acted as if they had never seen one before, and every movement of the little pink hands and every turn of the small bald head made them scream with laughter, until the principal of the school came into the room to see what the disturbance was, and after trying to look severe for five seconds, he laughed, too.

And while all this fun was going on, Elbert's mother was running wildly through the four rooms of her little house, calling her boy's name, and feeling sure that the children were either killed and thrown into the cistern, or else carried off, like Charley Ross, and lost forever. Just then the women whom Elbert had met stopped at the gate, and said to the mother, who was coming hurriedly out, "Is anything the matter, Mrs. Collins?"

"O, I don't know where my children are! I left them while I ran into Mrs. Brown's a minute, and the kitchen's all upset, and I'm afraid—"

"Why, we just now met Elbert with the baby, kiting along like the wind. Leastways, we supposed it was the baby, from the way he carried it. And he never—"

"Merciful man! he's taken her to school!"

Ten minutes later a flustered little woman rapped at the door of the First Primary Room, and inquired for a baby. It was handed to her, along with an empty milk bottle, and wrapping them both in a red cloak which she carried, she thanked the smiling teacher, and walked home.

At first, she had felt very angry toward Elbert; but when she remembered his horror of being late, she softened toward him considerably, and by the time she had got the baby home, and found her none the worse for her little run away, she had her laugh also; and being a fair-minded woman, she told Elbert, when he came home to dinner, that it was very thoughtless in her to have staid so long at Mrs. Brown's. And Elbert gave her a hug, and said he was "glad he didn't leave the baby, 'cause she might have been burned up, you know."—*Harper's Young People.*

NATIONAL ACADEMY OF DESIGN.—The exhibition this year is an interesting one and those who have not yet seen it must go this week as it closes on the 14th of May. The Academicians are well represented and a fair share of the younger artists appear. The large south room has been opened to accommodate better the paintings, and the parlors on the first floor and the stairway are hung.

THERE can be no question that the general results of public education would be far greater were those entrusted with the direction of such matters to adopt the principle that they would first select the most competent teachers available, and then assign them salaries sufficient to content them and make them regard teaching as their permanent occupation, and that the last measure taken in the interest of economy should be the decrease of the teacher's salary below a proper point. If education is worth doing at all, it is worth doing well; and the quality of the teachers is at the foundation of the whole system.—*Gov. Odell.*

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The work is designed for Clergymen, Sabbath-school teachers, and all students of the Bible. It is a work of great merit. We have tested it by using it several weeks as an aid in a close and critical study of the Bible. It is all that the author claims, and more. It comprises 41 chapters of questions, the last being a review of those that precede. These direct the learner, apparently, to every thing that must be known of the Bible—its mountains, rivers, seas, minerals, metals, plants, animals; its temples, patriarchs, prophets, judges, kings, priests; its men, women, children, weapons of war, implements of husbandry, poetry, music, architecture, oratory, weights, measures, genealogy, chronology and its ecclesiastical and civil poetry.

The arrangement of its subjects is systematic, and so far as possible, in chronological order.

There is a chapter devoted to "Questions for little folks," which attracts the children wonderfully. Many of the questions are familiar to most children, but we have noticed that they search out the answers to the more intricate questions with great eagerness.

About one half of the volume is devoted to answers arranged in corresponding chapters. Of the advantage of these answers to the student of the Bible or the propriety of giving them, we have some doubts. If the answers were simply references to the text, or, in case of those referring to contemporaneous history, to the author, page, etc., it would tend to make the student deep and thorough. Providing the answers looks too much like placing a key in the hands of the student of arithmetic, or literal translations into the hands of students of the classics.

The answers in many cases, since they are given, might have been made more instructive. For example, page 48, question 5, "What sovereign imprisoned two of his servants and then . . . reinstated one and hanged the other." (Page 229.)

Ans. "The Pharaoh of Joseph?"

6. "Who was king of Egypt at the birth of Joseph?"

Ans. "Pharaoh of Oppression."

7. "Who seems to have been the most impious of all the heathen kings of the Bible?"

Ans. "Pharaoh of Exodus?"

Pharaoh is a generic word, and the answers fail to impart much instruction. The work, however, is a most valuable aid to the student of the Bible. It is a rare work, showing great research, a thorough knowledge of the Bible, and an intimate acquaintance with contemporaneous profane history. It needs but to be known to secure for it a large sale.

THE STANDARD SERIES. J. K. Funk & Co. issue "Lothair" in two vols. at 25 cts. The type and press-work are excellent in each. Of this book the *Sun* says:

"In 'Lothair' and 'Endymion,' while we detect the propensity of an Oriental mind to theatric posturing and gorgeous coloring, we cannot but acknowledge that the picture, viewed as a transcript of society and of the arts by which the forces are controlled, attests the hand of one whose knowledge bears the stamp of con-

quest and authority, whose commerce with mankind has been prolonged, multiform and masterful."

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School Management.

This little book of 107 pages is an almost invaluable assistant to those for whom it is intended—young teachers in the school-room. The greatest deficiency on the part of teachers is not inability to satisfy the intellect of their pupils. Comparatively few present themselves for examination who are unqualified in this direction. But as managers and rulers of the young animals before them, those beginning to teach often fail to meet the expectations of friends, and seldom—very seldom—attain their own ideal standard. This faculty of governing, or rather of leading, is not the faculty which makes a model policeman. The teacher's business is not to detect crime, not to overawe the criminal. It is rather so to occupy the intellect of the pupil, so to engage his affections, and to influence his will, that his efforts shall be in accord with the efforts of the teacher. Then teaching becomes a pleasure as well as a profit to both parties, and mere governing is reduced to its lowest terms. It is to assist in securing these relations between teacher and pupil, that this little book is written, and it admirably fulfils its object. The chapter on "The Principles Which Underlie School Government," ought to be read thoughtfully and often by those who would teach easily and successfully. It is not a chapter of details. Those must vary with circumstances. But the principles here stated are universal, and the judgment of the teacher must arrange their application. The chapters on "Incentives," "Discipline," and "System," are especially valuable. It is self-evident that a small-book contains so much weighty matter.—*Virginia Journal.*

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The New York Musical Festival.

The plans for the Music Festival which has just closed successfully in New York, were laid in February, 1880, over a year ago; \$30,000 was subscribed with which preparations were begun, and one-third of this sum was paid for the Seventh Regiment armory—a handsome brick building covering an entire block. The first week in May, 1881 was fixed as the date for holding it. In the fall of 1880, singing societies were organized in Brooklyn, New York, Nyack, Jersey City, and Newark, and practise begun upon choral works to be given at the Festival. The Oratorio Society of this city, composed of four hundred and fifty members, also gave as much of its time as its regular concert work would allow, and later in the season its entire attention was taken up. The total number of singers in the societies, which were to form the grand chorus of the Festival, was 1,200. The orchestra was made up of the Symphony Society assisted by other musicians, in all 250 performers. The

soloists were engaged and the general outlines of the Musical Festival laid out before the people in New York realized what an extensive affair was under-way.

To make the Festival still more entertaining another feature was added. Twelve hundred of the young ladies of the Normal College (which is noted for its good singing) were given a part in one of the afternoon concerts. They were to be assisted by two hundred and fifty boys selected from different choirs in this city and Brooklyn.

The conductor of the Music Festival, Dr. Leopold Damrosch, holds an honorable position as director of the Symphony and Oratorio Societies, both of which he organized and built up until they now hold a recognized place in each season's music. Dr. Damrosch is a German by birth, and was associated with Bulow, Raff, and Tausig while studying with Liszt in Weimar. Later on at Breslau Dr. Damrosch took charge of an orchestra of seventy pieces and founded a choral society. His record since his arrival in this country, in 1871, has been a remarkably progressive one. The success which his undertakings have met with have earned for him a reputation as musician and artist, while the affection which is felt for him by the members of his four societies is one of the best evidences of the kindly feeling which is called forth by contact with him.

As a composer Dr. Damrosch has received high praise. The *New York Tribune*, in speaking of his "Festival Overture," said: "It is a robust and manly composition, contains strong and original themes, and its scoring displays an intimate knowledge of the resources of the orchestra and a quick eye for effects." As a conductor he obtains the best results, and perfectly controls singers and instrumentalists. The first Music Festival in New York has been accomplished only through his earnest and indefatigable labors.

On the evening of May 3d the Festival opened at the Armory with an audience of ten thousand people. At eight o'clock the trumpet blast announced that the concert was to commence. The conductor's stand occupied the center front of the stage, which reached nearly across one end of the building. The soloists took their places at the front; the orchestra was placed directly back, and rose in tiers, as did the seats of the 1,200 singers. The large Roosevelt organ, put up for the occasion, occupied the back center. When Dr. Damrosch appeared he was greeted with long and hearty applause. The "Dettingen Te Deum" by Handel, and Rubenstein's "Tower of Babel" were sung for the first time in America.

Wednesday afternoon's concert was well attended, and Mme. Gerster, Signor Campanini and Miss Cary carried off the honors. The orchestra played from Spontini, Handel,

Beethoven, Wagner, Berlioz, Liszt and Myerbeer. In the evening, after the "Festival Overture," by L. Damrosch, the composer-conductor, was presented with a laurel wreath on a cloth of gold. Berlioz's "Requiem," which, on account of its immense difficulties, has never been given in America, was then performed, Signor Campinisi taking the tenor solo. The "Kaisermarsch," by Wagner, closed the program.

Thursday afternoon the fourth concert took place. Two compositions for the orchestra, by residents of the United States, Ager Hamerick and P. L. Ritter, were played. One of the pleasantest features was a septet from "Tannhauser," sung by Messrs. Stoddard, Heinrich, Sohst, Toldt, Campinisi, Graf, and Rembertz. The Rakoczy March, from "La Damnation de Faust," was also on the list. The closing concert on Saturday night witnessed an enthusiastic ovation to Dr. Damrosch. The success of this great undertaking has given him renown in America.

On Friday evening Handel's noble oratorio, "The Messiah," was performed. The audience that evening was the largest that the Festival had yet seen, and every seat and place which could be utilized for standing-room was full. For several years the "Messiah" has been given by the Oratorio Society at Christmas tide, but never with the forces which made the "Hallelujah Chorus" resound as it did at the Festival.

Saturday afternoon the stage was filled by the Normal College girls and the choir-boys. They sang without accompaniment a hymn of the fifteenth century which Dr. Damrosch harmonized for female voices. The other selections which this chorus gave as charmingly as the first were a scene from "Rienzi" by Wagner, and the chorus of Hours from Schumann's "Paradise and Peri." During the concert the conductor was presented with a harp of flowers.

In the evening, at the final concert great enthusiasm was manifested at the appearance of the conductor and a shower of small bouquets from the chorus greeted him as he prepared for the Ninth Symphony of Beethoven. This was preceded by selections from "Die Meistersinger von Nuremberg" by Wagner. At the close of the evening the applause was long and loud and became an ovation to those who had worked so faithfully and given such a delightful season of music.

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One Christmas evening several children were standing before the Christmas tree, whose green branches were adorned with sparkling lights and all manner of gay things. Little Laura was greatly pleased with some golden nuts, and she wished to have them. Her mother replied:

"These nuts make the tree look very beautiful, let us leave them hanging on it. See here, you may have some other nuts."

"I don't like brown nuts, I want some of the golden ones," whimpered Laura.

Her mother remembered that often one can punish selfish children in no better manner than by letting them have their own way. She gave her the golden nuts and divided the brown ones among the other children.

Laura was greatly delighted, and cracked the beautiful nuts with curiosity. But to her extreme vexation they were all hollow, and her sister laughed at her. Her father remarked:

"There are many things in this world that resemble those nuts. The outside is gold while the inside is hollow."

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GLUCOSE.—This article is white and a little sweet, and is used to adulterate sugar and candy. It is much cheaper than sugar; it is somewhat like starch. It is made from corn. The corn is soaked in hot water for several days, and when it is fermented it is ground with a stream of water running between the stones. The fine starchy part that settles to the bottom is treated with soda or potash. This makes starch of it. Then after it settles it is mixed with water and sulphuric acid, and these cause more water to be absorbed by the starch. This makes glucose. It is now boiled down. If kept as a syrup it is put in with molasses to adulterate it; if made solid it is mixed with sugars. Look out for it.

A Losing Joke.

A prominent physician of Pittsburgh said jokingly to a lady patient who was complaining of her continued ill health, and of his inability to cure her, try Hop Bitters! The lady took it in earnest and used the Bitters, from which she obtained permanent health. She now laughs at the doctor for his joke, but he is not so well pleased with it, as it cost him a good patient.—Harrisburgh Patriot.

How He Did It.

Two boys were given a lesson To master one bright day, While a host of charms in the out-door world

Were luring them out to play; And the elder twitched and fretted, As a prisoned beast may do, While the younger went right at it And speedily was through.

"I wonder," said the teacher, As the younger walked away, "Why one of my boys so greatly Exceeds the other to-day?"

A face that beamed with pleasure And pride was turned to her, "It's because I buckled down to it!" Said the young philosopher.

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REWARD CARDS, No. 3.—A collection of eight pretty flower bouquet designs, etc., size 1-1/2 x 3-1/2 inches. Price, 7 cents per dozen.

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REWARD CARDS, No. 5.—An assortment of eight floral designs, with miniature bouquets, forget-me-nots, pansies, daisies, bearing word mottoes of "Friendship," "Love," etc., thirty different mottoes, 1-1/2 x 3-1/2. Price 8 cents per dozen.

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